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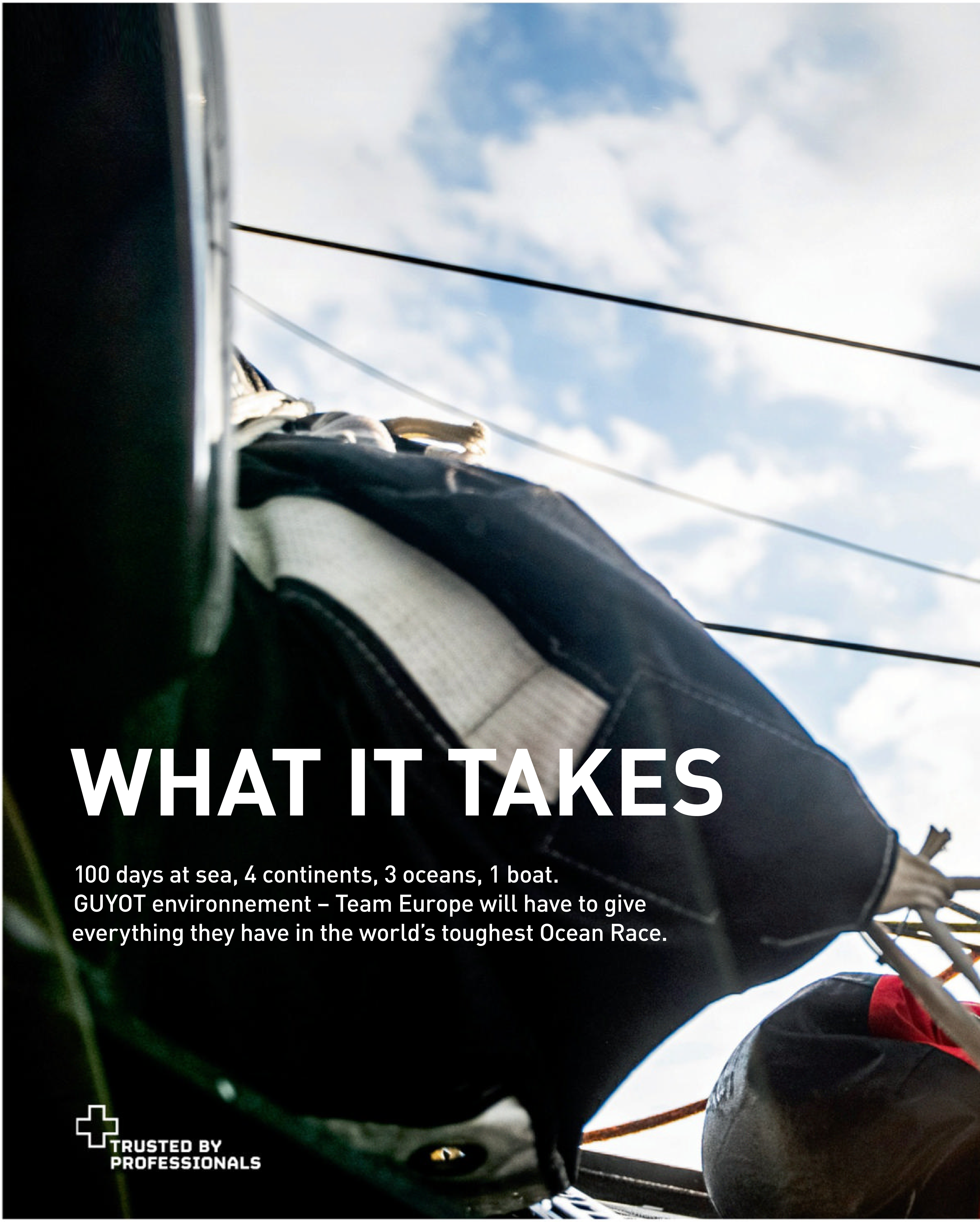
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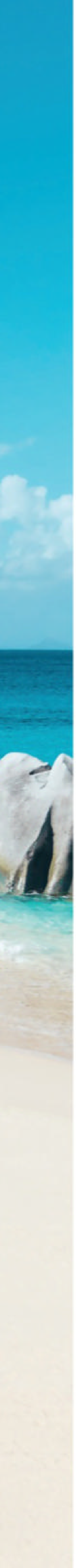

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PHOTOGRAPH BY AMORY ROSS/11TH HOUR RACING/THE OCEAN RACE

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BY DAVE REED

THIS IS GOING TO HURT

Everyone makes mistakes on the racecourse—that's how we get smarter and faster. But sometimes, as the saying goes, you just can't fix stupid.

NO matter how good the beer tasted on my lips or how glorious the fire-breathing spring sunset was through the windows of Newport Yacht Club's second-floor bar, I couldn't muster an iota of joy. If I could've reached my backside in this very moment, it would have been covered with shoe prints from kicking myself for doing what I can unequivocally say is the dumbest thing I've ever done in my 40 years of sailboat racing.

Allow me to set the scene. It's late March and my Turnabout Frostbite season is winding down. I'm knocking on the top of the overall season scoreboard, with third or even second place mere points out of my reach. To shuffle the deck and get me there, all I have to do is pull off a few keepers. There's no more room for a shocker, and on this fine Sunday, I'm fresh off the plane from a week of coaching at North U's Performance Race Week in St. Thomas, where I've been drilling fundamentals into my students and doing the same for me by osmosis. I'm feeling sharp. I have a confident sense of purpose.

In the first prestart of this season-saving race day, I stand up in my little white dinghy at the one-minute horn and look up the course to plot my first move. The light wind is blowing out of the north, shooting unpredictable zephyrs through the buildings. I'm not a fan of the northerly, but I've seen this movie before, and I've learned the hard way too many times this season: Left is best; right is death.

The seconds tick down as I hover alone near the pin on port tack. I eat up a few more boatlengths toward the pileup near the race-committee boat, tack with 15 seconds to go, sheet in, cross the line, tack again, and point my bow at the orange tetrahedron as I cross the fleet. That'll work just fine.

But perennial champ FJ Ritt, who has first place locked up for the season (again), is only a few lengths to leeward. We're matching pace, straight-line sailing. Nothing to worry about. It's just him and me. The tactics are simple: cover, cover, cover.

Round we go past the windward mark with Ritt on my tail. Same down the short run and around the bottom mark. He follows, then tacks. I stand up to take a second look at a wind line sneaking out of the harbor basin that's near the upwind right side of the racecourse. *Puff or cover? Puff or cover?* I ask myself twice. Greed wins out. I hold on port and beeline to the puff. But it's a mirage, so I cut my losses near the starboard layline to the finish. Once I tack and look under the boom, I can see Ritt charging in from the left, riding the edge of a dark wind line. Left is best, right? What the heck was I doing over here on the right. Yeah, dumb. I know.

But it gets worse. Now I'm playing offense, and I ease my mainsheet and bear away a few degrees to close gauge and try to engage Ritt with my starboard advantage. Once I realize I'm running out of runway, all I can

The competitiveness of Newport YC's Turnabout Frostbite A fleet leaves little room for bonehead mistakes.

PHOTO: BILL SHEA PHOTOGRAPHY

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do is shoot the finish and hope for the best. Holding my breath, I ease the mainsheet again and glide head to wind to strike the line. All the while, I'm watching Ritt under the boom as he's doing the same at the pin. They call his number. Nuts. Oh well, second is a keeper.

As we coast to a stop, I start jabbering with Ritt, congratulating him on a great race. Now adrift near the finish line, I notice the rest of the fleet coming in hot and in lockstep, so I bear away to clear out. As I do so, one of my fellow fleet members, who's calling and recording finishes from the dock, hollers over and says, "Hey Dave. You haven't actually finished yet."

"Wait? What? No way! That's impossible," I protest. But who am I to question the race committee? So, I loop back around the finishers and cross behind each and every one of them before finishing for real. First to last, in a blink.

The lesson for me here is, of course, to always confirm my finish. Listen for the horn, the whistle, the VHF or whatever means the race committee is using. And to be sure, just go ahead and sail around an end. There's also a lesson in hubris here, a lesson that the late Dr. Walker has most certainly written in a book chapter or magazine column years ago. As the good doctor would say, the pecking order is real, and Ritt is best—faster, smarter, and less likely to do idiotic things like me.

Turnabout ace FJ Ritt leans into another Frostbite win with a season of smart and fast sailing.

PHOTO: BILL SHEA PHOTOGRAPHY

I piled on a lot of unnecessary points with that one race, which punted me a few places downhill in the standings going into the final day of the season the following weekend. Ritt was out of reach and kind enough to volunteer for race-committee duty, allowing the remaining top four—practically tied on points (decimals aside)—to fight for leftovers. A dying easterly blowing through the Newport Harbor wharves is dicey at best, but after surviving and winning the afternoon's first race, I was confident I'd slid myself back into third overall. I could settle for that, drink my beer and be happy. Just one more race. Don't be dumb.

> **The lesson for me here is, of course, to always confirm my finish. Listen for the horn, the whistle, the VHF or whatever means the race committee is using. And to be sure, just go ahead and sail around an end.**

With a good clean start, I'm off to the left side. I tack well shy of the port layline so I have a clean and safe entry into the mark zone, with a lot of traffic coming in from the right. I aim for a space in the lineup and tack to starboard, easily laying the mark. But coming out of the left is the one guy I'm certain I need to beat to lock third. He beat me last season, and now it's my turn. At that moment, I'm thinking there's no way he can complete a tack around the mark without fouling me, so just to be sure, I point straight at the buoy and shut the door nice and tight.

That was dumb. He wasn't going to make a tack-rounding stick anyway, so me closing the door just brought us closer together. He was late ducking, and because I was sitting to leeward to induce some heel, I didn't see the top of our masts embrace, but I sure did hear the telltale *dong* of aluminum on aluminum. Rigs locked, we pirouetted downwind of the mark, boats streaming past until it was only the two of us licking our wounds. There was no getting back from this disaster, and the season came to a whimpering and depressing ending. Down I slid again, fifth overall.

I'd posit Dr. Walker would offer up yet another lesson here, something along the lines of how playing offense later in the race is better, or using the rules tactically can often backfire. Of course, Walker would be right. In hindsight, I should have just kept my line into the mark and sailed my own race, and all would have been fine. That much of it bothered me later that night, tossing and turning in bed, as I do on any given Sunday night after racing, replaying races good and bad. I could have gotten around that weather mark clean, I should have not been so aggressive on shutting him out, and I would've ended the season on a high note.

Dumb is as dumb does, but in recent memory—short as it may be these days—I'm confident nothing tops my Doofus Dave moment quite like whiffing that earlier finish with Ritt. As I drowned my humiliation in my pale ale that afternoon, Ritt and I got a good chuckle at my expense. "I foresee a column about this," he said with a smug chuckle.

Once again, the season champ has proven he knows my next move. ■

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STARTING LINE

Using the St. Thomas YC and Sailing Center's fleet of IC24s, North U Performance Race Week teams enjoy one of dozens of practice races sailed over the five-day clinic in March. PHOTO: GUSTAV SCHMIEGE III

BILL'S BOOT CAMP

Basic training takes on a whole new meaning when the drills take place on the turquoise waters of the US Virgin Islands.

HERE is the honest-to-goodness truth: After a North U Performance Race Week in St. Thomas, you will be faster, smarter and definitely a little sunburned. Most importantly, though, you will be ready for your home-fleet racing, with one distinct advantage: You will have done more starts, more mark roundings and a lot more boathandling than in an entire season. It'll feel like boot camp in paradise, but when you get home, you'll be ready to serve.

This tropical Performance Race Week happens twice each winter, once in February and once in March, and running the immersive sail-racing clinic is the kind professor himself, Bill Gladstone, who's been teaching the North U curriculum for decades and always greets the students with a kind smile and inquisitive head lean.

North U is now owned by the American Sailing Association, whose primary mission since the early 1980s has been to teach sailing and seamanship. With Gladstone's North U in their portfolios, they're now expanding into teaching racing through live clinics and online courses. Race Week students, from all sailing walks and classes, spend a couple grand apiece to get schooled on boatspeed, tactics and rules. But ultimately, the experience is all about teamwork, and the lesson plan is reinforced over five long eight-hour days on the water, in the classroom and with onboard coaches.

As this year's March edition of Race Week gets underway on an early Monday morning at the St. Thomas Sailing Center, the birds are chirping as Gladstone assembles the eager students. After pairing them with their coaches, he proceeds to pull boat assignments from a hat. It's no secret among the veteran coaches that some of the IC24s, which are modified J/24s, are faster than others. But at the end of the day, the boat draw doesn't matter because if the crew work isn't sharp, a faster boat isn't going to make a difference.

For the team I've been assigned to as a coach, what does matter is the color of the boat. Gladstone pulls our team's name and announces *One Love*. It's the bright yellow that's impossible to miss on its mooring. My first reaction is, "Oh no, not the yellow one." Brightly colored boats always get the starting-line caller's attention. But my team is ecstatic with the draw. The Olson 30 a few of them race back home in Duluth, Minnesota, is yellow and appropriately named *Tweety*.

I'm not thrilled about the whole color thing, but I do like the name, which is fitting for the exercise we are about to embark on. It's a song of unity, and that's what the goal will be: a tight unit with respect for each and their skills, doing our job to the best of our ability. Over the next five days, we're going to get together and feel all right.

My teammates are Bob Schroer, Marne Kaeske, Melissa Kuntz and Tim Buck. Each of them are in St. Thomas for individual reasons, but they've come as a team. When their sailing seasons get underway in a few months, they'll be racing at Minnesota's Duluth YC on Schroer's Olson 30 and Buck's Aerodyne 38.

For Schroer, priority No. 1 is crew mechanics. And after that, understanding wind patterns and helm balance. For Kaeske, who is relatively new to the racing thing, it's about confidence and knowing what's going on inside and outside the boat. Buck's goal is to correct "decades of bad habits," but also sail trim and better helming. And for Kuntz, it's simply

Sailors and friends from Duluth, Minnesota—Marne Kaeske on the bow, Tim Buck at the jib, Melissa Kuntz on mainsail and Bob Schroer at the helm—prepare for a spinnaker set at North U Performance Race Week in St. Thomas, USVI.

PHOTO: GUSTAV SCHMIEGE III

about being more comfortable with helming.

This much is all I can discern as we hastily gather for our first team meeting in *One Love*'s cockpit before rigging and dropping our mooring lines in St. Thomas' picturesque Cowpet Bay. Gladstone runs a tight schedule, so there's no time dawdle. A quick run through the boat setup and who's doing what in the first rotation, and off we go in the direction of Christmas Cove. The morning's session focuses on the basics of tacking, upwind sail trim and rotating everyone through every position. And when it's too soon, we're back ashore for Gladstone's first classroom session and lunch at the club. The afternoon's focus is spinnaker handling and crew rotations. With some additional classroom time and a video debrief, the sailors slink back to their condos, heads full of tips and bodies worn from a long day on the water.

The routine continues the next morning, with the addition of starting practice and one-lap windward/leeward races. Each "real" start is preceded by two practice starts, and by lunchtime, it's easy to understand why Gladstone promises more race starts than a season's worth. In two days, I think we've already met our quota. To mix things up and introduce a few more challenges, Gladstone adds an hourlong around-the-island race, a counterclockwise lap around nearby Great Saint James, which adds in some navigational skill development as well as some strategy lessons in navigating through swift currents and wind shadows.

On board *One Love*, I'm feeling pretty chuffed with the team I've been assigned because one of the biggest challenges of Performance Race Week is the mandatory crew rotations. Pushing students well out of their comfort zones and outside their normal crewing positions creates all sorts of stress and unfamiliar situations. The bow is usually the most difficult to master for those who commonly hold the helm. And for those who never drive, strong winds, waves and a fleet of student drivers make for heart-pounding starts and mark roundings.

On *One Love*, Buck and Schroer were plenty comfortable at the helm, but the most peculiar thing started happening: Kaeske and Kuntz, both of whom claimed zero experience driving in a race, were outstanding. By the fourth day of the clinic, our team were beyond basics and focusing on the 2.0 details, like cross-sheeting, passing the tiller behind their backs, roll-tacking and jibing. In four fast-paced days, I witnessed an amazing transformation in this foursome—more laughs, a lot less stress around the corners, and more confidence around the track.

We're mentally ready for the final-day regatta, where the coaches shall only coach between races. But to be sure, I suggest some morning calisthenics on the mooring. I trigger my stopwatch for five minutes, and we get a few curious looks from other teams passing by as Kaeske is on the foredeck end-to-ending the pole to lazy spinnaker sheets, Kuntz is at the back doing tiller passes, Buck's refining his jib cross-sheeting exchanges, and Schroer is practicing the roll-and-flatten with the mainsheet in hand. Now it's really looking like boot camp, and all we're missing are jumping jacks and burpees.

The "regatta" portion is a two-session, seven-race day, with races in the morning, including one distance race round Great Saint James—this time clockwise—a lunch break at the club, and more races in the afternoon. And as Gladstone promised, we got as many races in as you would over a typical three-day weekend regatta. It's fast-paced fun in the sun. Team *One Love* is solid mid-fleet going into the lunch break and, perhaps with a bit of a food coma, puts a 6 on the scoreboard before finally winning a race and closing with a fifth in the eight-boat fleet.

On the dry-erase scoreboard back at the club, we later learn we've tied for third. On the countback, the team on *Huron Girl* beats us with a second to our third, and that's that. Second place is only two points away—so close. But Performance Race Week is not really about points on the board. It's about getting faster and smarter, and while a sunburn will soon fade, the memories and the lessons will last a lifetime. ■

BY ALAN GLOS

A TREASURE HUNT

Long-lost relics of one-design sailing should never rot into oblivion. One long search for a Rhodes Bantam proves these boats are better preserved as a reminder of where the sport has come from.

THE Rhodes Bantam sloop is an open racing dinghy designed by renowned naval architect Philip Rhodes in the mid-1940s. At 14 feet, 325 pounds, and with 130 square feet of working sail (including a large genoa jib and a large spinnaker set on a 7-foot-long spinnaker pole), it was a hot boat in its day. The first wood Bantams were produced by the Skaneateles Boat Company in the Finger Lakes region of upstate New York and were an instant hit after World War II. Eventually, nearly 2,000 boats were produced, first in wood but later in fiberglass. Fleet racing was active in upward of 30 fleets, and the Rhodes Bantam Class Association held an International Regatta every summer at venues as widespread as New York, Pennsylvania, Ohio, Michigan, Illinois and Mississippi.

At age 15—63 years ago—I fell in love with the Bantam and persuaded my father to share in the purchase of a new Gibbs Boat Company wood boat, Hull No. 836. I sailed and raced that boat through high school on Acton Lake near Oxford, Ohio, and then traded it for a new wooden Baycraft-built hull, No. 1257, when I was in college.

After college, graduate school and a five-year hitch in the Air Force, I settled in upstate New York, sold No. 1257, and bought No. 1775 *Spirit* from legendary dinghy racer and builder Dick Besse in nearby Skaneateles, New York. My late son and I won the Rhodes Bantam International Regatta with this boat in 1981 and 1983. She was a joy to sail in a fresh breeze.

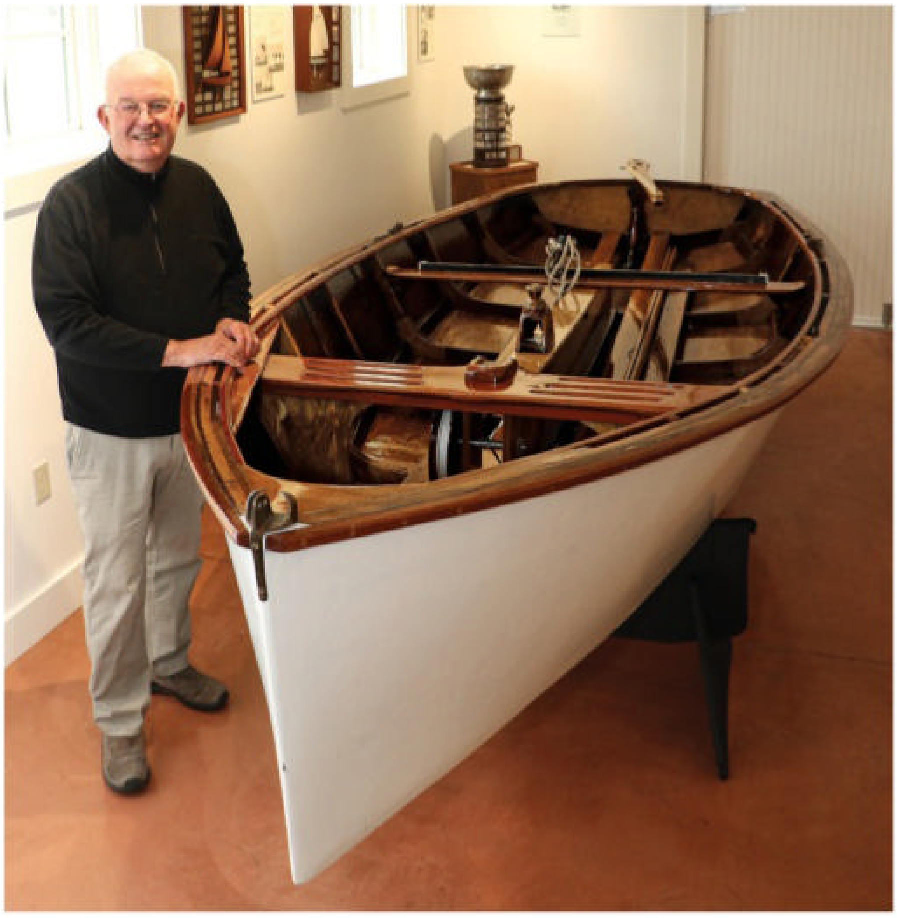
Like many two-person racing dinghy classes, the Rhodes Bantam class fell on hard times in the late 1970s as new classes came on the scene and younger sailors gravitated to Lasers and crewing on larger one-designs. By the end of the 1980s, only a few fleets remained, and the class no longer held its annual International Regatta. A few reunion regattas were held in conjunction with other regattas in upstate New York, but the class simply faded away for all practical purposes.

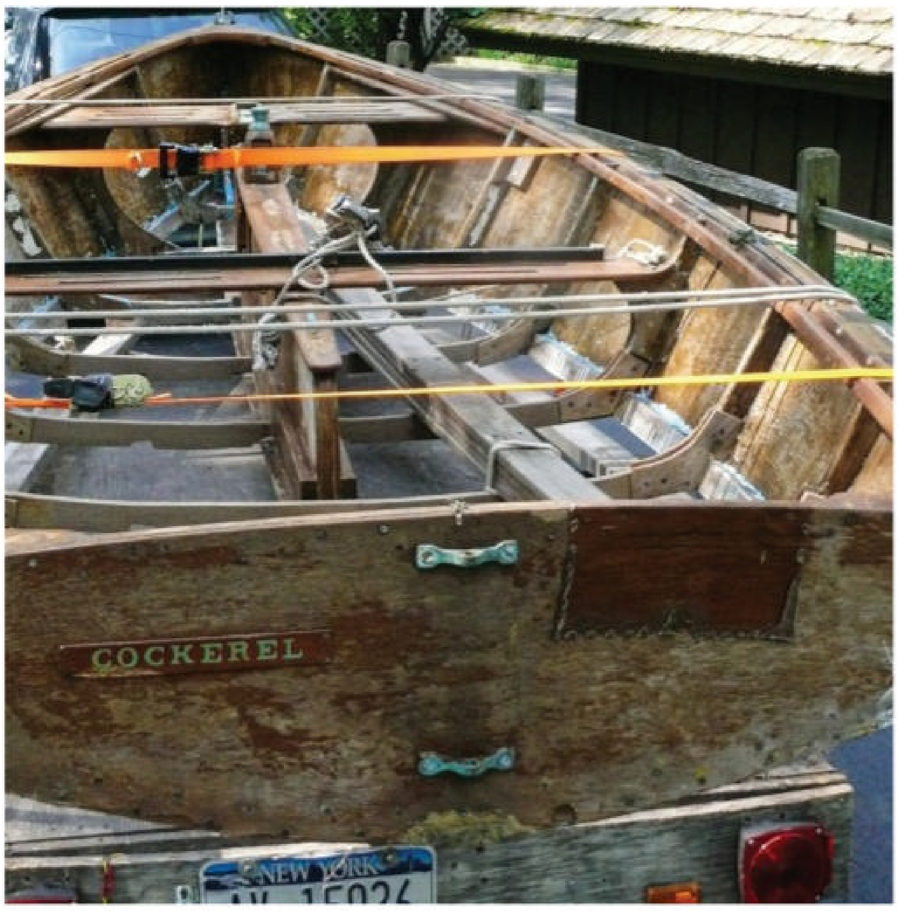
Fast-forward to 2009. The Skaneateles Historical Society operates a lovely museum called the Creamery in the Village of Skaneateles. The museum has displays that chronicle the history, culture and industry of the region, with an impressive collection of small craft built and sailed in Skaneateles. A few years ago, the society acquired Skaneateles-built Lightning No. 1 on a long-term loan from the Mystic Seaport Collection, and it is now on display in a new wing of the museum.

The family of the late Dick Besse also donated his last Bantam build to the museum, R-B No. 1823 *Woodwins*, an all-wood creation right down to the Sitka spruce spars. This boat is a real beauty and was displayed next to Lightning No.1.

The Skaneateles Historical Society, however, had an interest in acquiring a much older, historical Rhodes Bantam for its collection. Knowing of my interest in the class, one of the society board members approached me to see if I was interested in finding a suitable candidate. I readily agreed, but little did I know the search would take the better part of six years.

I immediately started my quest to find the oldest surviving Bantam in existence. A quick internet search turned up Lawrence Fortunato's excellent Rhodes Bantam website and photo gallery, which also featured a bulletin board where visitors to the site could





The author's search for the Rhodes Bantam Hull No. 2 was a six-year nautical treasure hunt. Its discovery led to a restoration and resting place at the Skaneateles Historical Society's museum.

PHOTOS: GENE GISSIN (LEFT), ALAN GLOS

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post comments. Sure enough, a gentleman named Charles Jannace posted that he had owned Rhodes Bantam No. 1 from 1954 to '55 and had sailed it on Little Neck Bay on Long Island. Then came another post from a gentleman named Alexander Scott, who said his family had owned and raced Bantam No. 2. Scott also stated that No. 1 was no longer in existence, and his father, Fred Scott, who had worked for the Skaneateles Boat Company, had redesigned the interior. No. 2, he said, was the actual production prototype for all the subsequent Skaneateles-built wood Bantams. Fred Scott went on to design several popular small sailboats, most notably the Force 5 and the Puffer. Alexander Scott left a telephone number on the website, and the hunt for No. 2 was on.

I called him and explained my interest in finding the boat. The call also reminded me that I had actually sailed on No. 2 with Alexander's brother, Rick Scott, one summer afternoon in 1963 when I was on vacation in Skaneateles. (I was 19 at the time.) I also learned that No. 2, named *Cockerel,* had quite the racing pedigree, having won the R-B International Regatta in 1949 and again in 1953. Alexander explained that his family had sold it to an attorney named Larry Hale, who lived somewhere in Massachusetts.

After a little more internet sleuthing, I found a website for Lawrence Hale, Esq. in Carver, Massachusetts. Using the firm's website, I emailed Hale, and he confirmed that he had purchased No. 2 in 1981, did some work on it, and even took it on his honeymoon in Maine in 1984. He also explained that he had given the boat to Reverend Cuthburt Mandell, the rector of the Aquia Episcopal Church in Stafford, Virginia. Naturally, I found an email address for the reverend, wrote to him, and found that he had owned No. 2 but ended up giving it to somebody who lived on Cape Cod. That's where the trail went cold; he had no name, address or telephone number.

Then, somewhat out of the blue, Mandell contacted me again and said he learned that the name of the last known owner of No. 2 was Mark Sherwin, an artist on Cape Cod. I now had a name but no other contact information.

Anyone familiar with Cape Cod knows there are a lot of artists who live there. It's also known to be a bit of a graveyard for boats of all types and sizes. A cursory web search yielded no match, but I persisted and did numerous web searches with different search words in my spare time. Finally, I found a post on an obscure artists website where—ta-da—one Mark Sherwin had posted and left—ta-da again—a cellphone number.

I immediately called and, after leaving a few messages, finally had a live telephone conversation with Sherwin. He confirmed he was indeed the current owner of R-B No. 2 and might be interested in selling or donating it for my museum project. He stated that he would contact me in a few months, and we could work something out. I was elated, but my elation was premature.

Months passed, and I did not hear from him. I tried to reach him again, but calls and emails went unanswered. I suddenly had this image of the hulk of R-B No. 2 sitting on the bank of a salt marsh somewhere on the Cape, slowly but surely rotting away.

But I had one other lead. A neighbor in Cazenovia, New York, where I live, had spent a lot of time on Cape Cod and knew the Sherwin family. He made a few inquiries, and low and behold, Sherwin emailed him at the end of August 2015, referenced my earlier contact, and expressed an interest in selling the boat.

Apparently, Sherwin had been dealing with serious health problems that might have accounted for some of our earlier miscommunications. But I now had a valid email address, home address and telephone number for him. I wrote and called him right away.

Over the following few weeks, we corresponded regularly. I learned that his son, a sailmaker in Seattle, had removed the ¼-inch plywood bottom from the hull and replaced several damaged mahogany frames aft of the centerboard trunk. It was also missing a mast and a tiller handle. Sherwin emailed me several good photos.

> **I suddenly had this image of the hulk of R-B No. 2 sitting on the bank of a salt marsh somewhere on the Cape, slowly but surely rotting away.**

We agreed on a fair price that would cover his storage costs over the years and restoration efforts to date, and settled on a pickup date.

On October 14, 2015, I pulled up to Sherwin's house in Sandwich and saw No. 2 for the first time in 52 years. As advertised, the bottom was missing, but his son had done a fine job of replacing several damaged mahogany frames. There were only pieces of the mast left, no tiller handle, and the rudder was a kick-up design not original to the boat. As is, the boat was not going to win any beauty contests, but she had "good bones," as they say, and could be restored to display condition with a new plywood bottom, a lot of sanding, paint, varnish and some new period-correct components. Sherwin could not have been more gracious. I am sure he had some regrets about parting with this boat, but I sensed that he shared my vision of where it should spend the rest of its days. We closed the deal, and I was off to brave the hazards of the infamous Bourne Bridge rotary and the Mass Pike back to my home in Cazenovia.

The boat and gear spent the winter in my barn, but I trailed the hull over to Skaneateles the following spring and formally donated it to the Historical Society. Dave Miller and John Barnes, two of the active society members, agreed to work on the hull, and I agreed to find the missing parts (mast, rigging, and the rudder/tiller assembly) and restore them and some other parts to display condition. Luckily, I found an almost-free 200 series Bantam barn-find derelict in nearby Tully, New York, that yielded all the period-correct missing parts and gear. Miller and Barnes cleaned the hull, fitted a new plywood bottom, and were well on the way when COVID-19 hit and everything came to a halt for the better part of two years.

The museum staff and I finally elected to do a fundraiser focused on former Bantam sailors and then contracted out the rest of the restoration to Todd Kallusch in Sodus, New York. His family used to build beautiful wood Bantams, and he did an inspired job of finishing the restoration.

Miller did the final work of displaying the boat at the museum, and we rounded up vintage photos, and even found and displayed the first-, second- and third-place International Championship Regatta perpetual trophies. The display has been a popular exhibit since it opened in 2022.

There are really two stories here. The first is about the birth, life and eventual demise of a fine sailboat class. The second is about how to find a 70-year-old relic so people can see it and reflect on just what a great little boat it was. I am happy to have been part of both stories, and while I have mixed feelings about the internet, I would have gotten nowhere in my nautical treasure hunt without it. If you are ever in Skaneateles on a Friday afternoon when the museum is open, gaze at the beautiful lake, have a beer at the Sherwood Inn on Genesee Street, then take the short walk to the Creamery on Hannum Street and enjoy being in the presence of its collection of wonderful old boats and associated displays. And give No. 2 a good look. She's worth it, as was the hunt to find her. ■

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ENLIGHTENMENT FROM THE INSIDE

The top boat of this winter's J/70 racing is sailing at a higher level with a greater sense of urgency.

THE most recognizable spinnaker in the US J/70 fleet is arguably the white one with a stylized red stick figure. And it is immediately recognizable because Brian Keane's *Savasana* has been a fixture of the class since 2012, usually near the front of the fleet and found wherever J/70s gather in numbers. Keane and his teammates have won plenty of J/70 regattas over the years, but never a world championship. Close, yes, but never No 1.

However, his current cast of teammates—Thomas Barrows, Ron Weed and Conner Harding—have their collective minds set on the impending Worlds in St. Petersburg, Florida, in November. There's no reason to doubt this could be their year to win the big one, especially considering they ran the table on the Miami J/70 winter regatta circuit with three big wins and then followed up with another at Charleston Race Week.

You might think this peak in Keane's long sailing career, which includes Junior National Championships, All-American honors and the Hinman Trophy, and has spanned eras in the J/105 and J/80 classes, is the result of some game-changing sail development or magic bullet. But you'd be wrong. The difference is Keane's present battle with cancer.

"Fewer things bring about clarity, focus and purpose than knowing you have been diagnosed," Keane says when we speak by phone in April after winning the J/70 Midwinters. "I can say for sure that has helped me this year because I want to win. It's a focus. Millions of people have cancer, but it's real, and I'm confident in a full recovery. That purpose is important to me."

Thomas Barrows, Conner Harding, Ron Weed and Brian Keane celebrate their J/70 Midwinters win, a big milestone on the road to the Worlds in November. PHOTO: HANNAH LEE NOLL

That is certainly a far bigger challenge than battling at the top of a pro-stacked one-design fleet.

"A lot of people may feel the J/70 class is overly pro-ed up, and I can understand that. But for myself, I want to go against the best of the best, and I love the fact that the class is not being dumbed down. It's still exciting for me, and many of the newer teams to the fleet to go against some of the people they've been reading about or have heard about."

What's on the road to the Worlds for *Savasana*?

So far this year, we've done two Davis Island events, then the Helly Hansen Sailing World Regatta in St. Petersburg, the Bacardi Invitational in Miami, the Midwinters and Charleston. We'll do [HHSWRS] in Annapolis and Marblehead, North Americans in Chicago, and then we'll be spending some time in St. Pete in October before the Worlds.

Given that most well-attended events like the winter regattas are 50- to 60-boat affairs, what do you find are keys to success on these crowded racecourses?

First is the team mentality. To have any chance of winning, every team member must understand what their job is and do it to the best of their ability. At the same time, each of us needs to understand what every other person's job is and what the interdependency is. That interaction is super important to our team and our time in the boat. At any point in the race, for example, I know what Thomas or Ron is doing, and that simplifies the language on the boat. We are always together during events. We learn together, we eat together, watch movies at night and talk about sailing all the time.

The second thing is communication, which does sound trite, but there are two categories of this: communicating what's happening outside the boat and what's happening inside the boat. This is all routine for us at this point. For the outside stuff, for example, before starting each race, I'll start off the questions: What do we see? What's our opinion? What do we see on the water? How does it compare to the forecast? What did we learn in the last race? What side of the line and why? During the race, communication shifts to our speed and height relative to the other boats around us. In the big fleets, I'm not looking around, and a lot of it is how quickly you can find a free lane after the start. So, it's so important to have the team looking around and providing real-time feedback on the wind, current, boat performance and tactical situation.

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set up for the given conditions. Before the race, we ask about the rig, the backstay, the jib tracks, making sure we’re in the right gear off the line. The gear you set up in for the start may be a different gear than you’re in 10 minutes later, so it’s imperative you always start in the right gear.

During the course of the race, we are a quiet boat; just talking about how the boat feels and taking a lot of input. I’ve been on a lot of boats where it seems the only person who has a valid opinion is the tactician, but we have four good sailors on the boat, so it’s important to hear how everyone feels and what they think is important. I think we do that as well as anybody.

The next category is adjustments, and I think we’re at a new level this year. That’s making a difference. Especially in the challenging conditions of Miami, with the waves and the wind, it is so essential to be always adjusting. The J/70 has so many tools, but the tools are useless unless you use them. With adjustments, we think of it from front to back: jib halyard, jib track, the ratio between the primary (sheet) and the inhauler. The traveler, backstay, vang and cunningham—in that order. Whatever we do with the headsail drives how we set up the main and how I drive the boat. Even a windspeed change of 2 knots or a modest change in wave state will require one or several changes of these tools.

We keep getting better at this and knowing what each of us will do and knowing what those adjustments are. The key to that is we compile comprehensive notes after each practice day and every race day, and it all goes into a repository. That becomes our baseline, and it allows us to be at that point where we can sail by the numbers. For example, if we are high and slow, the reaction is, “OK, let’s do X, Y and Z, and if we’re low and fast, let’s do A, B and C,” but we already know what the playbook is. Any team that’s serious has to have this database of notes so things become intuitive.

We also have numbers all over our boat. Let’s say we’re sailing in a regatta using the J/9 jib. We know how it should be set up in terms of the jib track; then we start focusing on the ratio between the primary and inhaul sheets, so these go into the notes as numbers. For example: jib track at 6, primary at 3.5 and weather sheet at 8. During the race, we’re talking numbers, and if someone is feeling something, we might say, “Let’s go primary to 2. 5 and weather to whatever.” It’s knowing what the numbers are. A lot of teams just go into the boat and trim by eye or feel. We go to settings. It makes our life easier.

I imagine that makes things a lot easier for you to strictly focus on driving.

It’s been a huge change for me. I grew up as a singlehanded sailor, and in college sailing, the skipper does everything, and I don’t do that. I focus on driving, but I have the base of knowledge, and that’s why when everyone in the boat is talking about what’s going on and we’re problem-solving, I may chirp in with an observation. The goal is to get to the point where everything is happening naturally. For example, as we’re approaching a wave set, Conner is easing the jib halyard, and Thomas has already eased the backstay. We may adjust the jib halyard 20 times in a given windward leg. It’s very dynamic, and that’s not how we were sailing three years ago.

Do you play your own mainsheet?

I used to do it, but I have not for the last five years or so. It took a while to get used to, but you eventually realize you have two people to play three lines, and given how dynamic we are, I bet I am by far the most active person in the fleet when it comes to the traveler. It’s moving nonstop. I will drop the traveler an inch or two, and our level of heel does not change. That leads to more direct efficiency on the keel and rudder.

Take us through how you sail through puffs on the J/70.

Conner’s calling puffs; their strength and direction, and whether it’s a lifting or heading puff. The traveler is always uncleated and in my hand, and what we try to do is be dynamic with steering. Thomas is trimming in the backstay just as the puff is coming on with one hand, and his other hand is on the mainsheet, so he and I are playing all three at the same time. One of the effective things of a traveler burp is you can burp it out with the initial puff and almost within a second start trimming it back in; the heel-angle change is imperceptible. If we do that right, we’re going to gain half a boatlength with every puff from boats that don’t.

How about the jib adjustments?

If we are coming into either a big puff or chop, the weather sheet comes off, which gives me a bigger groove. The halyard is being played with every up and down change in velocity or any wave-state change that’s going to affect our speed. Flat spots are just as important as puffs and waves; if we approach the flat spot with speed, we can go with a little extra trim on the main and banjo the weather sheet for about 15 seconds to be able to feather up and gain a bit of height in that one flat spot.

Confident breeze calling is important to this style of dynamic sailing.

Yes. One of my pet peeves is when people become talking heads, and 80 percent of what they’re saying I feel no difference in my tiller or face. In that sense, sometimes less is more because if you are saying something, it has to be important. Along that note, whenever I have a substitution for an event, I remind everyone that we will all make mistakes, so no barking. Just carry on and do our job.

Share some thoughts on starting in this class, especially with everyone using GPS starting devices these days.

We can continue to get better here. In general, what works for us is to set up around our spot early, but setting up early comes with its trade-offs. You have to have the skills to defend against port-tack poachers and really be able to defend your space—doing double tacks and basically doing what you can to push away boats on both sides so you leave yourself enough runway so that when it’s go-time, you can go faster than the boats around you. If you’re late to accelerate because you are too close to the line, boats around you that started two lengths before will own you. For me, the big thing is if we don’t have a lane off the start, I will happily take as many sterns as I have to in order to get out and get a lane. We have confidence in our speed, so at that point in time, say 30 seconds after the start, you’re still within five lengths of the leading boat, and that’s not so bad. So, we’ll give away a few lengths by ducking to get a lane, and sometimes finding that lane may take two or three tacks. But if you have a leg that is 1.5 miles, it’s worth it. Plus, in big fleets, there is that phenomenon where the wind is coming down the course and the entire wind mass rises above the wall of masts and sails. It’s good to get away from that wall.

Winging has become a powerful tactical tool in the J/70. Your thoughts?

It’s been around for a long time, but right now some sailmakers, like Doyle, have a kite that’s made to be a better winger. It’s critically important, but you have to do it at the right time. You have to be going 5 knots before you’re even thinking about doing it. Secondly, if you’re rounding near the front of your fleet, it’s dangerous to wing too early because the wind block from the cone can be deadly. You can make good gains by letting the cone thin out a bit, do a full jibe, go for a minute, and then pop the wing. At that point, you are one of the first to go over, and you are far enough out to get the clear air and then able to go straight to the mark. But you have to earn the opportunity; you have to fight for the spot to make it happen, then wait for a breeze and then pop it. ■

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CLOSING HIS CIRCLES

American circumnavigator Joe Harris can't get enough of that offshore thing. Round and round he goes.

BY HERB MCCORMICK

ON a dark St. Patrick's Day morning—some 15 miles from the Lorient, France, finish line for the Globe40 doublehanded round-the-world race—Joe Harris sat down at the bumpy navigation station of his extremely well-traveled Class 40 yacht, *Gryphon Solo 2*, and commenced to type his final blog post from a cold and rainy Biscay Bay.

"We are loping along at 7 knots of boatspeed without our foot on the accelerator for the first time in forever, as we are going to be in third place for this leg no matter what. So we are timing our arrival for daylight, and I thought this last night at sea might be a good time to digest and try to make sense of these past 10 months," he wrote in the last of dozens of posts that chronicled the eight-leg, 35,000-nautical-mile voyage he shared with mate Roger Junet.

"Trying is a word that comes to mind. Tumultuous is another, as is turbulence, but maybe I just like words that start with a T?"

As he closed the circle on his second circumnavigation on the boat—the first had been a solo record attempt for a Class 40 in 2015-16—tenacious is another appropriate adjective. That's because, for Harris, these last few miles were but the latest chapter in an epic nautical journey that started some five decades earlier, commencing with junior sailing, then learning the ropes on a collection of race boats from his rock-star bowman dad, to amassing his own series of racers, including an old, leaky wooden boat, a C&C 40 and an Aerodyne 38. Finally, he moved into the elite realm of shorthanded offshore sailing, first on a canting-keel Open 50 before moving into the Class 40 battles and knocking off a pair of circles around the planet.

And that's not even counting the seven summers he spent in Alaska's Bering Sea crewing aboard and then skippering commercial fishing boats out of Bristol Bay. How to sum up this maritime odyssey? It had certainly been a lot of things: technical, taxing, transforming, thorough, tremendous.

CAPE HORN
12·18·2022

Joe Harris (right) marks another Cape Horn passage, this time with mate Roger Junet, during the 2022-23 Globe40 Race.

PHOTO: COURTESY JOE HARRIS

Harris comes from strong saltwater genes. For fun, his Dutch grandfather, Dr. Hans Rozendaal, conducted regular transatlantic voyages throughout his life, a total of six in all. His old man, Woody, was a sought-after crewman in his day, winning the Triple Crown of yacht racing—the Transatlantic Race, Cowes Week and the Fastnet—in the late 1950s aboard Richard Nye's famous Rhodes Yawl, *Carina*. That was before Woody bought his own 75-foot Chesapeake Bay skipjack to tool around Long Island Sound.

Born and raised in Greenwich, Connecticut, Harris' own path to the sea began in the junior program on Blue Jays and Lightnings at the Indian Harbor YC. In his teens, however, sailing took a back seat to other sports, particularly hockey and lacrosse, the latter he played four varsity seasons at Brown University. A road trip to Alaska his junior year, which started a string of seven lucrative summers in his own version of *The Deadliest Catch*, rekindled his passion for the water, especially the gnarly offshore stuff.

A year at The Landing School in Maine gave him the woodworking and carpentry skills he parlayed into winter boatbuilding gigs at Shannon Yachts in Rhode Island and Ted Hood's Little Harbor yard in Marblehead, Massachusetts. Somewhere in there, he also built and sold a home on Block Island. It was all good fun, and he was making decent coin, but it wasn't the career path of your typical Ivy League grad.

Approaching his late 20s, Woody hit him with the age-old, fork-in-the-road question that's been posed down through countless generations of fathers and sons: What the hell are you doing with your life? When Woody offered to pony up half the tuition to business school, Harris matriculated to Babson University for his MBA, which led to not only a long, lush career in real estate finance and development, but also provided plenty of the cold, hard cash that was its reward. That gave him the means, almost immediately, to invest in sailboats.

The first was a little woody (no pun intended) named *Corus*, which he soon began calling *Pourus* in recognition of the steady ingress of water through its seams. Next up was *Shiva*, so named for a Hindu god, the C&C 40 aboard which he started his skippering career with coastal races, eventually becoming the platform for his initial forays into doublehanded racing with, appropriately enough, Woody as crew. After that came *Gryphon*, a 38-foot sportboat designed by the late Rodger Martin, aboard which he continued racing two up and also started competing in solo events like the Bermuda One-Two.

For a sailor with ever-growing long-distance ambitions, it had been a steady, ascending trajectory in the sport. The next step was a major one into a certified big-boy boat, a carbon-fiber, canting-keel, twin-daggerboard, water-ballasted Open 50 rocket designed by French aces Finot-Conq. It was a veteran of two round-the-world solo contests, the most recent by American Brad Van Liew under the handle *Tommy Hilfiger Freedom America.*

The goal was a round-the-world race called the Velux 5 Oceans Challenge, organized by the famed British solo legend Robin Knox-Johnston. After originally calling his new ride *Gryphon Solo*, Harris slapped on a new name, *Wells Fargo American Pioneer*, after securing a sponsorship deal with the prominent bank with which, not coincidentally, he was conducting a ton of business—a win-win situation.

His inaugural Grand Prix event was the 2004 edition of Artemis Transat (formerly called the OSTAR), a brutal 16-day upwind slog across the North Atlantic from Plymouth, England, to Boston, in which he scored second in class. With veteran English sailor Josh Hall, Harris then knocked off an Open 50 class victory on the 21-day voyage from France to Brazil in the Transat Jacques Vabre in 2005, a trip designed to be the serious tuneup before the Velux race.

But there was a hiccup, and it was a momentous one: More or less at the last minute, the organizer pulled the plug on the Open 50 class. Harris was, quite literally, all tuned up with nowhere to go. It was time, as they say, to pivot. And the timing was fortuitous, for there was a relatively new boat and game on the shorthanded offshore racing scene: the Class 40.

Harris purchased his Marc Lombard-designed 40-footer, *Gryphon Solo 2,* in 2011, aiming to be on the starting line of a dedicated Class 40 round-the-world contest, the Global Ocean Race, in the fall of 2014. In preparation, he knocked off a trio of Atlantic Cup races—a dash up the Eastern Seaboard from South Carolina to Maine—winning it in early 2014. And then the unthinkable happened: the Global Ocean Race was also canceled.

"Once again, I was all dressed up with no place to go," he says. "After all the time and money I'd put into the new boat, I couldn't believe it was happening again. So, I said to myself, 'I'm not getting any younger, and I'm tired of waiting for these races. I'm going to do a solo, unassisted round-the-world record attempt.'"

It turned out a Class 40 record of 138 days was on the books already, established by Chinese sailor and explorer Guo Chuan in 2013. (Chuan was tragically lost at sea during a singlehanded transpacific record attempt in 2016.) Unfortunately, Harris' 2015 record run unraveled in the South Atlantic on his approach to South Africa, when the converter box on his hydrogenator fried and forced him into Cape Town for repairs. After resuming the voyage, *GS2* hit what Harris called a USO, unidentified submerged object, which punctured the hull and forced an unscheduled haul-out in Uruguay to make repairs. But between those stops, he made a memorable rounding of Cape Horn in a 50-knot gale. Ultimately, he closed the circle on his lonely circumnavigation in mid-2016 after a 33,000-nautical-mile spin of 152 days.

For many marathon solo sailors, if not most, it would've been the crowning achievement of a noteworthy sailing career. For Harris, however, there was still unfinished business to attend to, a missing check mark on his personal, proverbial bucket list: He still hadn't raced around the planet. That is, not until the recently concluded Globe40 affair.

Organized by Sirius Events, the doublehanded Globe40 was not your typical round-the-world race. Beginning in Morocco and finishing in France, the 33,000-nautical-mile event was significantly longer than previous traditional, four-stop round-the-world races. This event rounded the great southern capes before heading north into generally lighter, upwind conditions, which extended the length and time of the legs.

The winding, eight-leg racecourse, with a decidedly French accent, included stopovers in the Cape Verde Islands; Mauritius; Auckland, New Zealand; Tahiti; Ushuaia, Argentina; Recife, Brazil; and Grenada. Crew swaps were permissible (the Canadian entry *Whiskey Jack* rotated through six co-skippers); an initial entry list of 15 boats was whittled down to seven starters, of which there were a quartet of finishers. The Dutch duo of Frans Budel and Ysbran Endt on *Sec Hayai* were the winners; *Gryphon Solo 2* notched a fourth after an extremely eventful voyage of 173 days.

For crew, Harris recruited Junet, an Italian born and bred in the Alps who'd moved to Portland, Maine. "He was an excellent partner," Harris says. "We got our onboard routines down pretty good. Having the continuity was a real benefit. Our sail changes became very slick." That said, racing a Class 40 offshore is no picnic. "Actually, it's very uncomfortable," he says. "The motion of the boat is very violent. Particularly upwind, the boats just slam horribly in a seaway. They have a really flat forefoot, and they just pancake."

The opening leg from Morocco to the Cape Verde islands was, "just fabulous," Harris says. "First a reach and then downhill, which is when you're loving life on a Class 40." But the second leg, around the tip off Africa and up to the isle of Mauritius? "A nightmare," he says. "It was supposed to be about 32 days and ended up being almost 40. You get around the Cape of Good Hope and you've got a foul current and you've got a thousand miles upwind in light air."

A series of gates the fleet was obliged to honor, ostensibly in the interests of safety, chopped up the next legs in what in most round-the-world races are straight shots through the Southern Ocean, a section of the trip Harris had reveled in during his previous circumnavigation. So too did the side trip to Tahiti, again off the beaten track, but at least with the addition of a pleasant visit to French Polynesia.

The leg to Ushuaia ended off Cape Horn before a detour up the Beagle Channel, which was unusual but interesting. Next was a long journey to Recife, with the bulge of Brazil positioned well east in the South Atlantic, which made the ensuing leg back to Grenada somewhat of a non sequitur because it sent the racers in the opposite direction of the finish line in France.

And then there was just one last passage back across the North Atlantic. "Twenty days," Harris says. "One low-pressure system after another, just continuously slammed, 30 knots and above most of the time. Cold and getting colder. Reduced sail, three reefs in the main. We saw a 63-knot gust, the highest of the whole race. Luckily, we were going downwind nearly the whole way, which was great. But then came the end, the finish."

And, of course, the last thoughts on that last blog post: "As we come down the home stretch, it is a bit of a melancholy feeling to know that this adventure will soon be over. I am glad I did it for sure, but I am also glad to move on to the next challenges… I love our little *GS2* space module/biosphere, where we make fresh water from salt water, produce electricity from moving through the sea and from the sun, and move across the water only through the power of the wind in our sails. I will miss it for sure, as it is a natural high and feels right just being at sea in this fine craft."

The only thing left to say to sum up the whole crazy sprint of his sailing life, with that last circle now closed, perhaps needed just one more "T" word.

Triumphant. ■

BREAKING THROUGH THE BOTTLENECK

One local initiative proves that funneling dinghy sailors out of college sailing and into big-boat racing takes commitment from all sides.

TRANSITIONING from collegiate sailing to keelboats can be difficult for many young-adult sailors who lack experience or connections. It's not a new problem, and while there are national events and local efforts across the US to retain these young sailors, one program in Rhode Island is having a real and positive impact on the local crew pool.

"You have a lot of people between 18 to 25 that love sailing and maybe do it in college, but then life takes them in different directions, so sailing loses them," says Peter McClennen, a beneficiary and supporter of Sail Newport's EOS Sailing Program. "Our view is that college-age sailors don't really have strong big-boat crew skills. A lot of sailors have never used a winch before and never really worked in anything more than a two-person crew, so we start to introduce the important aspects of teamwork, communication, trim and choreography. We try to have them build two to three role skills so that they can be helpful on other boats."

Sail Newport's EOS Program was founded by a group of local sailors in 2017 in honor of renowned big-boat sailor Edward Oliver Sanchez, known for his work ethic and positive attitude. "Tad was always the first one on the boat, the first person down in the bilge bailing it out, and the last person to leave," says Thomas Loughborough, a professional sailor who coaches with the program. "If you needed a sail moved, he was the first person to jump up and help you move it. The ethos and values of this program were lived by our friend Tad, who was taken from us too soon from bowel cancer in his late 30s."

With a fleet of donated C&C 30s, the program instructs about 40 sailors, who compete in the local weeknight racing series. To maximize learning and skill-building, the boats are helmed by experienced sailors, and each boat has one professional sailor on board to coach.

"Bringing experienced people onto the boats is a core part of the whole platform," McClennen says. "We have stable, calm, professional drivers because it's very hard to train a driver and crew at the same time. If the driver's wrong, the whole crew's wrong—that's just how it works. The crew can't really be learning if the driver's not doing the right thing."

The program's ethos is that developing the skills of reliability, responsibility and hard work is

Peter McClennen, at the helm, is a beneficiary and supporter of Sail Newport's EOS big-boat sailing program.

PHOTO: LUCAS MASIELLO

Members of the of University of Rhode Island Sailing Team have passed through the EOS program and on to local teams. PHOTO: LUCAS MASIELLO

paramount to preparing young sailors to thrive in keelboat classes. "Teaching resilience is step one; I'm not easy on them," Loughborough says. "A lot of my coaching has to do with a real focus on the process that is mundane, time-consuming or just uncomfortable, and by that, I mean cold, wet or disruptive to your day. All that preparation before you get on the water is essential to performance on the water."

Loughborough's tough-love approach has provided a generation of committed sailors the opportunity to thrive in keelboats. One such beneficiary is Anthony Purcell, a sailor on the University of Rhode Island Sailing Team. "When I heard about EOS, I was all over it," he says. "I was a freshman in college looking for a way to participate in a highly competitive sport without sailing dinghies."

Purcell joined the program in the summer of 2021 with minimal keelboat experience. Through working with Loughborough, he developed the skillsets required to be an indispensable member of the programs he now sails with. "The most crucial part of being a program member is showing up—and consistency," he says. "Tommy was a great mentor because he was able to take me from a timid kid who didn't know what I was doing to someone with the confidence to say, 'If I show up and put in the time, there's no reason things can't get done.'"

Now in his third year with EOS, Purcell is the program's fleet manager and the offshore coordinator of the URI Sailing Team who regularly races in IC37 class regattas.

Opportunities for EOS sailors to confidently transition into serious racing programs is the goal, McClennen says. "Once you're with us and building skills, we're all pretty well-networked in the sailing community, so as people look for crew, we feed them out. We have people on 12-Meters, IC37s, TP52s, you name it—that's a key hallmark of our program. If you're committed and focused on becoming a good sailor, you will get connected and end up on race boats all summer long."

McClennen's own IC37, *Gamecock,* has a crew roster filled with EOS sailors. "My boat has 10 people who have been a part of EOS, as do many of the other IC37s," he says. "That's where you see how important those crew skills are. Imagine you're leading an IC37 campaign and need sailors; an EOS kid can say, 'I know how to do runners, I know how to do bow, I know how to do mast.'"

Maintaining a fleet of well-used C&C 30s presents a plethora of challenges for the program, Purcell says. "The boats are eight years old, and that's going to be the limiting factor of the program right now. With old boats, the more you sail them, the more they'll delaminate and fall apart, and the more things will break."

It takes a village to keep the boats in working order. With Purcell leading the charge as fleet manager, the sailors take the initiative to maintain the boats and repair damage. Jim Stone, of Gorilla Rigging, donates standing and running rigging to the program and services the boats when needed. Program helmsman Randy Shore, who owns the Newport-based sail loft Sailor and Seam, repairs the sails.

The framework that EOS provides is one solution to the nationwide issue of providing pathways for college sailors and recent grads into adult sailing fleets. The success of any such program, however, depends on the support of boat owners, professional sailors and organizations. For EOS, the connections, capabilities and access to the facilities and staff of Sail Newport, the city's public-sailing facility, are critical to the effort.

Loughborough believes programs like EOS require three things: generous benefactors, an organization like Sail Newport that is willing to take on the risk and responsibility and, most importantly, a pool of keen young adults who want to move to the next level. "If the community in which you're trying to create this doesn't have that level of interest in the sport, then it's going to be very difficult to get that type of buying and participation from the students themselves," Loughborough says.

While the program is limited to Newport, its local nature allows for a dynamic environment that adapts to the needs of its sailors. "It's very motivating to work in this type of program," Purcell says. "Every time I throw out an idea, Peter is all about it. It's really awesome that he goes out of his way so much to give everybody as many sailing opportunities as possible, and then repeat those opportunities to anyone who shows commitment to the program. It's very motivating to know that the time and effort I'm putting in are recognized by those above—not only recognized, but greatly appreciated and often vocalized. It's great to be a part of a program that I know has enthusiasm and funding."

The success of EOS over the years confirms at least one thing: Most college sailors want to continue in the sport but lack the connections and skills to do so in big-boat sailing. As long as there is an opening to connect sailors to boats, more will transition from scholastic athletes to participants of a lifetime sport. It's a model approach that can benefit any fleet looking to increase participation and ensure its longevity. ■

BY DAVE REED

BIG START IN THE BURG

When the wind, sun and good times align in Florida's Sunshine City, the first stop of the Helly Hansen Sailing World Regatta Series is always a crowd-pleaser.

THE Helly Hansen Sailing World Regatta Series kicked off its 2023 edition in the vibrant Tampa Bay enclave of St. Petersburg, Florida. As a destination regatta with the guarantee of reliable winds, a seasoned race-management team and a buzzing nightlife, the St. Pete stop of the series drew 250 entries across 21 classes, ranging from the diminutive foiling Waszps to the larger keelboats of the PHRF and ORC classes.

The regatta's largest gathering was the 48-boat J/70 fleet, packed with teams gearing up for the J/70 World Championship in St. Petersburg later in the year. Here, 26-year-old skipper Edward Lebens, of Oyster Bay, New York, and his teammates on *Reggae Shark* approached the final day of the regatta with a clear plan: to cover their rivals while carefully defending their lead in the ultra-competitive and pro-laden class. Easier said than done.

The team's primary focus was keeping tabs on Bruce Golison's *Midlife Crisis*, 14 points in arrears. "We had a pretty healthy gap, so we were really just going to try not to have a shocker and sail our own race," says the young professional sailor.

When the wind failed to materialize across Tampa Bay, however, race committees pulled the plug and sent competitors to shore. With the cancellation of races across all 14 classes, Saturday's overall results stood firm, with skippers Michael Norris and Pete Merrifield winning the L30 and Weta North American championship titles, respectively, and Steve Boho's *The 300* winning the Melges 24 Midwinter Championship title.

The St. Petersburg regatta also featured an eclectic mix of one-design dinghy classes, which included the classic doublehanded Flying Dutchman and Contender classes, both won by veteran sailmakers who have long been champions of these and other legacy classes. Lin Robson, with crew James Nunn, won five of seven races in the five-boat FD fleet. Ethan Bixby had no such misfortunes in his Contender singlehander and was one of only two entries to post a perfect scoreline.

Two divisions of A Class Catamarans—Classic and Foiling—sailed together but scored separately. In the Classics, Woody Cope led after the first day's moderate-wind races. But in the small-craft-warning conditions on Saturday, it was all OH Rodgers, who posted three race wins to take the series by a single point over Chris Brown, who had a strong first day (with two race wins). Of the Foilers, Larry Woods, of Ontario, Canada, was the top gun, edging out young Cam Farrah, the top female of the fleet.

In the 21-boat Lightning fleet, which featured a number of sailing all-stars and luminaries, as well as several youth teams, it was professional sailor and multiple class champion Jay Lutz with Jody Lutz and Christine Moloney, edging out world champion skipper David Starck (with crew Tom Starck and Jenna Probst) by a slim two points. Third was Hall of Famer Augie Diaz.

Lorie Stout and Sunrae Sturmer topped the 18-boat Melges 15, and in the J/24s, Mike Quad's *Ice Cube* won all but one race to close the series with only 12 points after eight races. In the two-boat Sonar fleet, Kevin Holmberg went undefeated, and in the three-boat Waszp fleet, Izaak Beekman finished the series one point ahead of Maya Kwasniewski, of Sarasota, Florida, who won all three races on the windier of the two days.

In the Hobie 33s, Craig and Deborah Wilusz's *Hoof Hearted*, from Fort Walton Beach, Florida, dominated the races by winning all but one of their eight races.

The ORC circle featured a battle between two well-practiced J/111 programs in ORC A that went the way of Bill and Jackie Baxter's team on *Fireball*, from Stamford, Connecticut. In ORC B, Jeff Sampson's Nelson/Marek 29 *Peacemaker* was the top finisher.

Michael Siedlecki's Martin 243 reveled in the windy conditions to win the PHRF Spinnaker division, and Charles Mixon's Nightwind 35 *Red Sky* claimed PHRF Cruising A. Dave Roberts' Catalina 310 *Legacy* won PHRF Cruising B, and Gail Hausler's Beneteau 40 *Liquid Time* was the top PHRF Cruiser/Racer. ■

2023 DATES

ST. PETERSBURG	SAN DIEGO	ANNAPOLIS	CHICAGO	MARBLEHEAD	CARIBBEAN CHAMPIONSHIP
February 17-19	March 17-19	May 5-7	June 9-11	July 27-30	October 21-28

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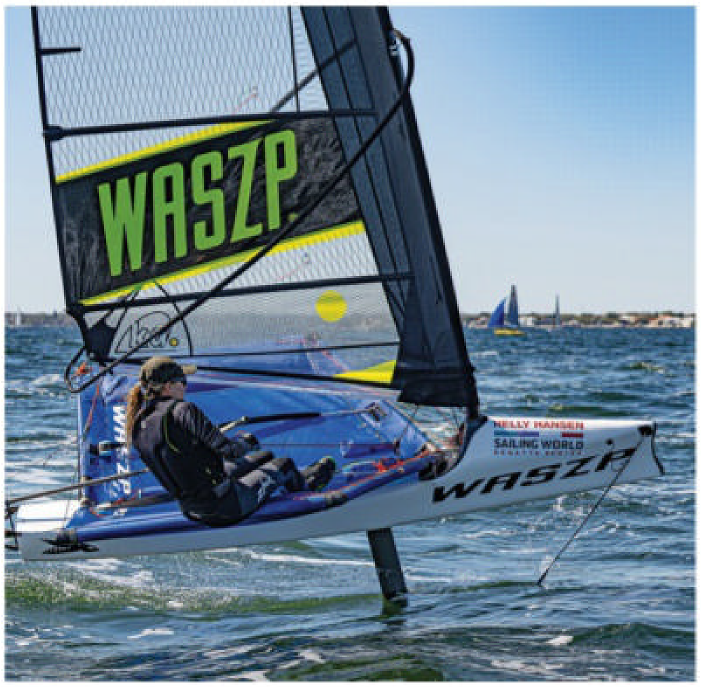
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REGATTA SERIES
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Of the Helly Hansen Sailing World Regatta Series' five locations, St. Petersburg is perfectly situated—on the calendar and geographically—because it offers ideal destination winter sailing at one of the most vibrant cities in Florida. With the expanse of Tampa Bay available for a multitude of racecourses, nearshore and offshore, the regatta continues to attract a variety of classes—from dinghies, cats and foilers to keelboats—and hundreds of sailors who come for the racing and stay for the nightly parties, the action of downtown St. Pete, and, of course, bragging rights and trophies to carry back home. PHOTOS: WALTER COOPER/HHSWRS

TEAM MATROS TO THE BVI CHAMPS

Tom and Mary Bryant and their teammates on the S2 7.9 *Matros* lost only one of eight races in the 13-boat fleet at the Helly Hansen Sailing World Regatta Series in St. Petersburg. As the winner of their class, they earned the S2 7.9 Midwinter Championship title and were selected as the regatta's overall winner, earning them a berth at the Helly Hansen Sailing World Caribbean Championship in the British Virgin Islands in October, hosted by Sunsail.

With Tom on the helm and Mary managing the middle of the boat, this close-knit crew was clearly the fastest S2 7.9 on the course all weekend. "Good sails, good crew work, and knowing how to tune the boat and sails for the conditions," was Tom Bryant's assessment of his team's win. "I'm not very good in the lighter winds, so the 8 to 15 knots of breeze we had this weekend was fantastic for me and the boat. When we can get out front and get clear air, we're faster."

The Helly Hansen Caribbean Championship Regatta will host individual winners from all stops of the series. The championship is also open to teams wishing to join for a week of island racing, relaxing and revelry in the Caribbean's finest racecourse.

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HOW THE PROS DO IT

The best way to better understand how top teams sail their way around a crowded racecourse seemingly with ease is to sail with them, of course. But we know that's not always possible, so during the practice race day of the Helly Hansen Sailing World Regatta Series in St. Petersburg, we put wireless microphones on board David Jannetti's J/70 *Very Odd* to listen in on how Quantum Sails' Travis Odenbach and pro tactician Andy Horton work their magic.

Following close behind in a RIB throughout the race and capturing their every move on video, we witnessed the importance of heel angle, breeze calling, traffic management and downwind winging technique. The enlightening 20-minute hot-mic action is available at *Sailing World*'s YouTube channel. Search for "Listen and Learn," and trust us, you'll learn plenty.

AMERICAN MAGIC ON STAGE

Sailing World's Dave Reed launched the Sailing World Speaker Series at the Helly Hansen Sailing World Regatta in St. Petersburg with an information-packed one-on-one exchange with American Magic skipper Terry Hutchinson, providing the regatta's attendees with an in-depth perspective of the technology of the latest generation of AC75s and the inner-workings of the team as it trained in Pensacola over the winter and stepped up efforts to win the hearts and minds of the American sailing fanbase ahead of the 37th America's Cup in Barcelona.

"The script we are writing is to be determined," Hutchinson shared. "We measure ourselves by our results, and it's no more complicated than that. Whatever the score sheet says at the end of October 2024 is what our story is going to be. What we do between now and then is massively important because we are on a world stage. It's hard to win, and we'll take all the support because it will take every one of us to win the regatta."

WALTER COOPER (LEFT), DAVE REED (ABOVE)

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Inland Championship
August 4-6 • Clear Lake, IA

East Coast Championship
August 12-13 • Beach Haven, NJ

Great Lakes Championship
August 25-27 • Chicago, IL

National Championship
September 29-October 1 • Blue Point, NY

BY DAVE REED

THE BREAKAWAY SPECIALISTS

At the Etchells World Championship in Miami, the lead pack broke out early, with the eventual winner making its move in the final race.

VICTOR Diaz de Leon often rides his road bike for a couple of hours before and after a day of racing. In the saddle, he doesn't listen to music. Instead, he's simulating racecourse scenarios: what was happening on the boat, what the tactical play would be or could have been. "It's a time of meditation; a place where I get ideas," says the Etchells world champion tactician, who calculated a brilliant final-race win in Miami in April, a race executed alongside his teammates on John Sommi's *Veracity*.

To earn the title on that light and shifty last day of the Aon Etchells World Championship, *Veracity* had to beat series leader and past world champ Steve Benjamin and his all-star crew on *Tons of Steel*, but there was a lot to it. Hedging a one-race day, Diaz de Leon hatched a plan: "I knew it would be hard to make nine points on Benji with only one race, especially if they had a good race themselves. So, I'm thinking we just have to have a good start, assess where others are in the race and take it from there."

The others were Jim Cunningham's *Lifted*, tied with *Veracity*, and Luke Lawrence's *Cruel Jane 2.0*, sitting mere points behind in third.

"We started near the favored pin end in a tight lane, but held on long enough that when we tacked to port, we were strong on the fleet. When we tacked, Benji was a few lengths below us, slightly bow forward, and it turned into a real speed thing to get strong on him and get ahead of him. When we finally recognized Jim and Luke's teams were deep, it was us and Benji, and it was on."

Problem was they were 1-2 at that moment and both were "launched." "If we won and they got second, that wouldn't work," Diaz de Leon says, "so we decided to start playing down on them."

Veracity slowed its rival as much as they could on the starboard layline, allowing a few boats to get ahead and between them. *Veracity* was fourth to the mark and *Steel* was ninth. Still not enough.

"Playing backward downwind is very risky," Diaz de Leon says, "because it's easy to get passed. So, I was comfortable just doing it all upwind."

On the second beat, *Veracity* herded *Steel* deeper into the fleet, always from a controlling position. "It was important to do it as early as we could," Diaz de Leon says. "We were conscious about not getting too close or ever slower than them, but there was less tacking than I anticipated. They were content sailing in our bad air, which made it a bit easier. They were also reaching a lot to try to get clear air, and I was happy with that too as we were sailing into the fleet. The magic number for us was they had to finish 22nd or worse."

A jibing duel down the next run continued the skirmish, pushing *Steel* ever deeper to beat them around the course with points to spare. They celebrated their win with Champagne and plunges, but once ashore there was the business of two protests lodged by Benjamin's tactician Mike Buckley, who invoked rules 11 and 17. To the protest room *Veracity* dispatched its trimmer, Will Ryan, a two-time Olympic medalist and national judge. The situation involved an attempted luff on a windward leg, and the way the veteran judges saw it, Benjamin overstuffed his luff and was ultimately disqualified.

Veracity's owner and skipper, 65-year-old John Sommi, from Darien, Connecticut, got his first sailing world title, and as is always the case, this win was a high-caliber team effort. On the bow was Beccy Anderson, who is also *Veracity*'s boat captain. It was Anderson who deftly identified *Lifted* and *Cruel Jane* in the lineup of identical boats and white sails during that last race, empowering Diaz de Leon to promptly execute Plan A.

Ryan, who won his Olympic 470 gold medal in Tokyo and his silver in Rio, is the team's speed maestro, and Sommi is, of course, on the helm. They'd been sailing for more than a year, a syndicate that

***Veracity* put up an impressive string of top-10 finishes at the AON Etchells Worlds to win the title with tactician Victor Diaz de Leon, coach Morgan Trubovich, bow and boat captain Beccy Anderson, skipper John Sommi and trimmer Will Ryan.** PHOTOS: NIC BRUNK

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formed when Sommi, a successful Wall Street executive and father of four young adults, found himself with an empty nest and a desire to get back to sailing. Sommi campaigned a J/88 and a Melges 20 before diving into the deep end of the high-stakes Etchells class. "The goal was to go sailing and play at a high level," says Diaz de Leon, "and I remember John saying that he just wanted to sail well and be respected—or something like that."

They won both the National and North American championships last year. "We were sailing really well," Diaz de Leon says. "And then one day, Will said, 'Someone has to win the Worlds, so why couldn't it be us?'"

With a supporting cast of top-shelf coaches that included *Veracity* teammate Tom Dietrich, sailmaker Chris Larson, Etchells whisperer Jud Smith and pro-sailing legend Morgan Trubovich, *Veracity* established itself as the team to beat by winning the first of three Miami Winter Series events that were each essentially pre-Worlds regattas. As a result of a collision before the second event, *Veracity*'s mast was toast, and that's a big deal in Etchells sailing because rig tune on this tweakable old one-design is everything.

***Veracity* established itself as the team to beat by winning the first of three Miami Winter Series events that were each essentially pre-Worlds regattas.**

"All the tuning numbers and the characteristics of the rig that suited our style were gone, and the next rig we got didn't suit our style," Diaz de Leon says. "That was difficult, and we did the second event with the new mast and we struggled."

They then dispatched Larson to the Selden Mast factory in Charleston, South Carolina, on a forensic search for the perfect spar. Larson bend-tested several spars and picked the best two he could find. "We weren't as fast as we were [with the old mast] initially, but we got better and better," Diaz de Leon says.

Veracity's results at the Miami Worlds speak for themselves, from the development of their sails with Smith to their many tuning and training sessions of the past year. They were never slow and, aside from the match-race discard with *Steel*, 12th was their highest finish over eight races in the fleet of 65. A review of *Veracity*'s tracker replays paints a picture of their consistent approach to the congested Biscayne Bay racecourse. They never once started at an end, they worked the middle left on the first beat, middle right on the second, and worked the center of the course on every downwind leg, which is easier to accomplish with good starts.

"Most of the time when I start a race, I don't know where I want to go," Diaz de Leon admits. "I like to leave my options open and decipher during the race. By starting toward the middle [of the line], there's lower density, and it's harder for the race committee to call the boats there. Working with Truby (Trubovich) in our debriefs, we got a sense of the race committee's style during the general recalls. The race committee [on the signal boat] was more aggressive calling boats than the pin boat, so I figured I might as well move a bit left."

They were also geared up for every start, and Diaz de Leon says that was all thanks to Trubovich, who deployed his own buoys in the starting area in the morning, which *Veracity* would use for three practice starts as part of their pre-race routine. Trubovich, a 16-time world champion from New Zealand who has enjoyed a fruitful career in the grand-prix world, is also representative of the level of coaching in the Etchells class today that makes winning impossible for mere mortals. He brings all the tools to the table, as well as an attention to technical detail and a sense of humor that Diaz de Leon says was magic to the team.

"He just brings such a great positive energy, and his debriefs are incredible with the technology. Let me give you an example: For the Worlds, he sent me out to Best Buy to get a bigger TV for the hotel room because the one we had was too small. He told me the model we needed, and I came back with this huge cinema TV, and it really did help see the footage better from the GoPros we have on the boat, his stuff from outside the boat, all the data, speed, heading, and we have microphones on so he could hear how we interacted with each other."

In these debriefs, Diaz de Leon says he realized how hard he was on Sommi at times and thought maybe he should dial down his intensity. "But John never once complained, he just grinds away and is completely focused, and works his ass off to correct any weakness. He's been so successful in life, has a beautiful family and, as a young guy, I very much look up to him as a role model. I remember him telling me once that in his 30 years on Wall Street he never once missed a day of work, and that's the same commitment he brings to the team. After our practices, he was always the one asking for 10 more tacks, or jibes or more starts, or whatever. His dedication is amazing."

Sommi's focus on the helm, Diaz de Leon says, is what allowed them to be so strong in the first few minutes off the start, surviving and climbing off competitors in lanes so thin and seemingly impossible to hold. But it wasn't just Sommi that made *Veracity*'s tactician look smart all the time—full credit, Diaz de Leon says, goes to Ryan.

"He's the best sailor I've ever sailed with," Diaz de Leon says of the Australian medalist and decorated world champion. "He's insane and has a feel for the boat like no other. I sometimes think I can feel the boat better than most—and I'm not being cocky here—but the first time I sailed with him I thought, 'Man, this guy is feeling things that I don't even feel at all.' He's an animal and has a crazy ability to focus under pressure in the thick of it.

"He said something to me once that I thought was really cool: He said, 'We've earned this privilege to race under pressure, so let's enjoy it.' He's just positive, so polite and fun to sail with. To be honest, I have a man crush on him, and he has one on me too."

Ryan is a disciple of the 470, and Diaz de Leon says: "His understanding of how the rig works, how all the jib controls work—it's all amazing, and he knows what control to touch to achieve whatever mode we want to sail. He and John are now so good at moding the boat that I can look out of the boat all the time."

In the 7 to 18 knots of "Champagne sailing conditions" for the Worlds, *Veracity*—the boat and the team that massaged it around the racecourse—was collectively true to its namesake. They were honestly fast and sharp under pressure, and there's a parallel to be drawn between Diaz de Leon's obsession with bike racing and the experience of winning one the most difficult world championships in one-design sailing, especially the calculated handling of *Steel* in that final race. "In bike racing, when you're in a breakaway, you're suffering with everyone. You want to keep up, and you might want to quit, but you tell yourself, 'Hang on a little longer because they're eventually going to give up.' You need to be patient. It's said that everyone has a limited number of matches, and whoever finishes the race with the most matches left will win the race."

Such is the mentality of Etchells sailing's breakaway specialists. It is the same in sailing as it is on the bike. The fight for every advantage, every inch and every point is fueled by determination, discipline and a willingness to suffer. As it was for team *Veracity*, it's about getting out front and setting the pace until the title is firmly in hand. ■

SPI OUEST OR BUST

The progression to a big regatta requires a lot of small but essential steps before making the big leap.

MY CURRENT project is a partnership in a Sunfast 3300, a 33-foot doublehanded offshore boat. Our intention is to sail the best races in Europe over the next few years, and while there are clusters of similar doublehanded boats in England, Spain, Italy and Scandinavia, the cream of the crop is racing in France.

The French have been playing this game for a long time, so we decided to enter the springtime Spi Ouest Regatta in La Trinite sur Mer. This is one of the biggest regattas in the world, with over 460 boats. The format is short coastal races in the Bay of Quiberon, a perfect opportunity for my doubles partner, Alyosha Strum-Palerm, and I to test our skills. Using this regatta, we figured we can see where we need to improve in advance of our big test this summer, the IRC Doublehanded European Championship in July.

Our goals for the regatta were to work on boatspeed, refine our sail crossovers, work on communication and division of responsibility, solidify our boathandling, and enjoy racing in an incredible event in France.

Starting: We did not practice starting, and during the event, that was our weakest area. We had three mediocre starts, one of which we were barely OCS, and one decent start. In retrospect, we should've practiced more, and started more in the center of the line. In tight inshore racing, with 58 similar-speed boats, the start is critical. With better starts, we could have won the regatta.

Upwind tactics: Our play calling was below average, especially early in each of the beats. The correct side was not obvious, and we would typically go the wrong way, then figure it out and gain some back at the top of each beat. But this is an area for improvement. In some instances, a little more current research could have informed us; in other cases, we should have taken a smaller early loss to stay in touch with the leaders. It was another good lesson.

The author's teammate, Alyosha Strum-Palerm, helms their Sunfast 3300 at France's big Spi Ouest Regatta.

PHOTO: JONATHAN MCKEE

Upwind speed: Our pace was decent in over 10 knots, but not so good in lighter air. We made some small changes to the rig tune before the event, which I think were positive. We learned to use the J1.5 jib higher into the range than we thought we could, say 14 knots true windspeed, with more halyard and lead pushed outboard for the upper range. We also had good success with the J2 in 15 to 20 TWS and learned the boat likes a pretty powerful jib. A heel angle of 18 to 20 degrees seemed to be a good target upwind and reaching. In light air, it's hard to induce enough heel in this boat, so I learned to trim the main tighter in less than 10 TWS, which resulted in more heel and power.

Boathandling: Our handling was good, among the best in the fleet, which means our training back home in Seattle paid off. It was also an advantage at times to have an asymmetric spinnaker, while many boats had a symmetric. Alyosha also did a good job of predicting the correct sail for the next leg, which is not always easy with the random legs and strong current.

One area we need to improve is tacking. In stronger wind, we lost a lot versus the single-backstay boats because it took us a long time to get to full backstay tension. I started to dump the main fine-tune out of the tack instead of the traveler only, and I think that was an improvement. The challenge for us is that the jib sheet and the runner use the same winch, so now we want to try a slightly different jib-tacking technique: Cast off all wraps as the boat is turning, tail to hand tight through the self-tailer, then immediately go runner-up, then jib final trim.

Reaching and downwind tactics: This was a real strength for us. We picked the right side on the runs and played the shifts well, and we got clear air and stuck to the rhumbline on the reaches. It's important for the helm to know the leg compass angle because you often could not see the next mark.

Reaching and downwind speed: We always passed boats reaching and running. It's partly because our kites are bigger and our hull form is good for downwind sailing, but I think we have fast downwind sails, and we have a good feel for the right angles and trim.

Sail crossovers: We used the masthead code zero exclusively, using no tweaker most of the time. The A1.5 is good for 3 to 12 knots, and the A2 for 8 to 25 knots. The A2 was surprisingly good for tight reaching in moderate air, up to 105 TWA. We used the spinnaker staysail in 10-plus knots when running and 8-plus knots when reaching.

Weight placement: We went max forward with the sails and gear in less than 10 knots, then centered until about 15 knots, and put more in the stern above 15, especially reaching. In light air, if one tack is favored, it might be worth putting the weight to leeward rather than max forward to try to induce heel.

We ended up 14th of 58 with an OCS, 3, 4, 3. We would have been fourth in the first race, which would have been 4, 3, 4, 3, or 14 points. The winner had 12 points, so we are definitely in the game. The main areas to improve from this event are starting, early leg tactics and light air upwind. The areas we don't know about yet are big-picture tactics and endurance and energy management.

It's rewarding to look back on how many goals we were able to focus on with measured success. We raced bow to bow with good teams in a large competitive fleet of boats, made French friends, and soaked up the atmosphere of the largest multiclass regatta in France. We had a lot of fun, and we are excited about our future. It was definitely worth it, and we hope to return next year. Voila! ■

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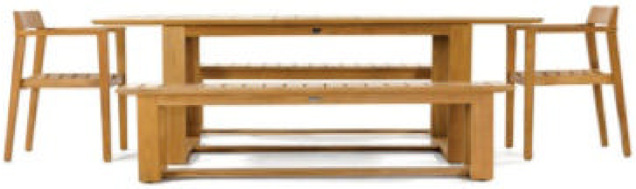

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BY LUCAS MASIELLO

THESE BADGERS GO BIG

Collegiate offshore regattas provide inland teams the opportunity to develop big-boat skills and sail in premier offshore locations.

COLLEGIATE keelboat sailing does not get nearly the amount of attention it deserves. While offshore teams were long seen as a secondary option for sailors either too big or not experienced enough to compete in dinghy fleets, several teams are shifting away from traditional collegiate dinghy sailing to focus on the growing number of competitive collegiate offshore regattas held across the country. In the 2022 college offshore season, a new squad made its mark on the world of collegiate keelboat sailing: the University of Wisconsin.

Wisconsin is an unlikely candidate to win in offshore sailing; as a club team that practices on an inland lake, the university is hard-pressed to match the resources of government-funded teams, such as the US Naval Academy, or teams located near coastal sailing hotspots, like the College of Charleston or the University of Rhode Island. However, Wisconsin's record speaks for itself: Having won the 2022 Intercollegiate Offshore Regatta in Larchmont, New York, and the 2022 Great Lakes Intercollegiate Offshore Regatta in Chicago, it is clear the big-boat Badgers are a force to be reckoned with.

"It's been really cool to see the Midwest be represented in college offshore sailing," University of Wisconsin team captain Kate Thickens says. "When I was a freshman, offshore sailing wasn't cool. Now there are a lot more people on our team interested in sailing big boats, so we are going to as many offshore regattas as we can."

Wisco's development of its keelboat program represents a national effort to increase big-boat access to younger sailors. The Larchmont and Great Lakes Intercollegiate Offshore Regattas, hosted by the Storm Trysail Club, are one prong of a sport-wide approach to increasing youth keelboat participation. Over the past decade, regattas such as the Harbor Cup in Los Angeles, the South Carolina Offshore Regatta and the Lake Erie Intercollegiate Offshore Regatta have sprung up to support decades-old regattas such as the IOR series and the US Naval Academy's Kennedy and McMillan cups in creating a year-round, competitive collegiate offshore racing circuit. The Intercollegiate Sailing Association, College Sailing's governing body, is also taking steps to bring offshore sailing

University of Wisconsin sailors went undefeated in the J/109 division at Storm Trysail Club's 2022 Intercollegiate Regatta in Larchmont, New York.

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into collegiate sailing's fold, now recognizing key offshore events such as the Los Angeles Harbor Cup and Southern Collegiate Offshore Regatta as ICSA events despite them not being hosted by universities.

The addition of collegiate big-boat sailing has allowed swaths of youth sailors who outgrew or lost interest in dinghy sailing to continue to compete at a high level. "Offshore is the land of the misfits," Thickens says. "It's a great option for people who are told that they are just too big for college sailing. Obviously, with dinghy sailing, people are very weight-conscious, so they don't always want somebody that is 6-foot-4 in their boat. I think people like that have definitely found more of a home on the offshore team, where they aren't being told that they [are] too big. In fact, people will say, 'Wow, we want you as our mast guy or gal or trimmer because you're taller and stronger.'"

Competing in a variety of boats during offshore regattas provides the opportunity for new keelboat sailors to learn the skills necessary to continue on after graduation. "A lot of the time, we've never even practiced with the exact group that is competing in the event because we're still building our offshore team," Thickens says. "I'd say the majority of our effort is toward bringing new sailors into keelboats and teaching people how a winch works or how to fly a spinnaker."

Access to keelboats remains a challenge for most teams, while the traditional powerhouses of offshore sailing enjoy waterfront facilities with a variety of donated keelboats to train on. The Badgers practice once a week using the Hoofer Sailing Club's Tartan 10s on inland Lake Mendota. Competing in boats ranging from J/70 sportboats to J/109s and Dehler Optima 101s, the team often does not have the opportunity to train in its class of boat until the day before the regatta. "One thing that helps us do well at events is having a full day of practice on the day before the regatta," team helmsman Jack Schweda says. "A lot of the time, most or all of the crew hasn't sailed that specific type of boat before, so the practice day is a huge help."

What the Badgers lack in facilities, however, they make up for through community support, relying on alumni and friends of the team for coaching. "We've had a lot of good chalk talks in the past year or two from alumni and guest speakers," Schweda says. "Everybody on the keelboat team comes to these chalk talks and learns about how each position works—even positions that they might not be doing. I think that helps because each sailor hears it all; when a sailor gets put on the roster doing a position they have never done before, at least they have been to those chalk talks where they've heard the information and can try to work toward doing a good job."

While Wisco has been unique in its success in the past year, it represents a growing number of club teams that are taking up offshore sailing and placing on the podium at the highest levels.

Van life is the good life for college sailors, especially for the University of Wisconsin big-boat sailing squad, which must travel afar for access to keelboats.

PHOTO: COURTESY UNIVERSITY OF WISCONSIN SAILING

Located hundreds of miles from the venues where they compete, team members drive through the night in their personal vehicles to sail against top teams. Managing logistical challenges that other teams take for granted brings the team together, Thickens says. "Our drive to regattas is normally anywhere between 15 to 17 hours in the car, but I honestly think that it's a positive thing. Yes, we are tired, but the drive creates chemistry with the group. This sailing team is one big family—there is no other group of people that I'd rather be packed into a minivan with and be stuck in the back seat. As a freshman, it was really cool to be thrown into these vans with older people on the team and get to know them; there's really no better way to get to know people."

While Wisco has been unique in its success in the past year, it represents a growing number of club teams that are taking up offshore sailing and placing on the podium at the highest levels. The similarly club-funded and freshwater University of Toledo placed second in the 2022 Larchmont Intercollegiate Offshore Regatta's J/105 fleet and won the PHRF A division of the 2022 Lake Erie Intercollegiate Offshore Regatta.

The rise of such teams affirms that collegiate offshore sailing now allows many new or club-status teams an opportunity to take their sailing programs to the next level. While the Navy-hosted McMillan and Kennedy cups still featured the same decadeslong champion keelboat teams, events such as the Larchmont and Great Lakes Intercollegiate Offshore Regattas saw a plethora of club and developing teams the likes of Virginia Tech, Ohio State and Syracuse.

Offshore sailing may also be the way forward for new teams looking to establish themselves in the realm of competitive collegiate sailing and provide opportunities for sailors to thrive in the sport as experienced keelboat crews. Connecting collegiate sailors with race-boat owners provides a viable and sustainable solution to supporting local racing scenes with a deeper and younger pool of available crews. ■

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To the Brink

The Ocean Race's brutal third leg—nearly 13,000 miles of hard racing

Justine Mettreaux, Charlie Enright and Jack Bouttell wrestle with the tiller during a crash jibe in the final stage of The Ocean Race's Leg 3.

AMORY ROSS/11TH HOUR RACING/
THE OCEAN RACE

at full-tilt—produced epic stories of people and perseverance. **By Ed Gorman**

and Back

There were concerns about the durability of the foiling IMOCA 60s being pushed to their limits in the Southern Ocean, and each team was dealt its share of breakages, but 11th Hour Racing bore the brunt of it, from broken battens to a crack in the hull, major sail damage and two broken rudders. Team Malizia faced one of the more daunting repairs, which required reinforcing the top of their rig after a headsail halyard sawed through the carbon mast tube.

11TH HOUR RACING
MUSTO

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THE OCEAN RACE

It may never happen again.

What we're talking about is The Ocean Race's monster of a stage through the southern Indian and Pacific. What was originally a solution to the impossible challenge of trying to organize a round-the-world race with stops through Asia in the time of COVID-19 may have manifested itself as a new classic course—the new Everest peak for fully crewed ocean-racing teams, starting in Africa and ending in South America.

It was always going to be one hell of a challenge, this great distorting marathon sitting among six other standard-size Atlantic-based stages in the 50th anniversary edition of The Ocean Race, formerly the Volvo Ocean Race and the Whitbread. And it looked to have disaster written all over it because there were so many unknowns: Would the foil-assisted IMOCA 60s, with their delicate appendages and lightweight hulls, be able to cope with the violence of being pushed full-pelt for 35 days through the most inhospitable seas on the planet? How would their four-strong sailing crews survive in their spaceship-size capsules, on a platform with a ride quality ranging from uncomfortable to unbearable? And how would the race's credibility survive this challenge, with only five boats on the starting line under Cape Town's Table Mountain? What if three—or worse, none of them—failed to complete the course? This later concern weighed heavily on race organizers and fans alike.

In the end, we were treated to an epic sporting story too deep and expansive for this space. And it was one that proved that even if there were only four boats on the racecourse (Guyot Environnement-Team Europe dropped out with structural issues), if they are good boats, then it can be a compelling watch. And these were good boats sailed by some of the world's best solo and fully crewed yachtsmen and -women.

Leg 3 had everything: big downwind racing in towering seas and storm-force winds, and long periods of atypical calm for the Southern Ocean, even in summer, and remarkably close racing. How close? While passing the most remote spot in the world's oceans at Point Nemo, all four boats were within hailing range of each other. And there was some serious record-breaking pace at times, with the IMOCA 24-hour distance record smashed, jumping from 539 miles to 595 miles, courtesy of Kevin Escoffier and his crew on the Swiss-flagged *Holcim-PRB*.

The leg captivated a hungry social media audience with compelling stories of resilience, determination and resourcefulness by each and every crew as they battled rig and sail damage, hull and appendage structural failure, and personal injury in one case to keep their race on course. And all of it was vividly recorded and shared by the onboard reporters (OBRs) forbidden from taking part in crew work. What the OBRs gave us was a fascinating Big Brother's-eye view of everything that went on for over more than a month at sea, plus compiling some of the most spectacular drone footage of foiling yachts in the Big South, the likes of which had never been captured in such high definition.

Of all the subplots that played out over 36 days, the most compelling was that of the eventual leg winner—and a surprise winner at that: Team Malizia, skippered by the charismatic German Boris Herrmann. Alongside him was the young British sailor Will Harris, the experienced French navigator Nico Lunven and the Dutch sailor Rosalin Kuiper. The team's 2020-vintage VPLP-designed boat was tipped by many to come last in this race because it is big, heavy, and slow to get up on its foils in marginal conditions. Indeed, in Leg 2, from the Cape Verde islands to Cape Town, *Malizia* lost 200 miles to the fleet in just three days.

On Leg 3's long eastbound highway, however, the hope for Herrmann and his crew was that their beast of an IMOCA would show its true pedigree in the South, and so it proved. But long before it could do that, their race almost came to an end after three days when the Code Zero halyard lock failed and the halyard carved a 30-centimeter trench in the front of the mast, 90 feet above deck.

At this point, the temptation to return to Cape Town was almost overwhelming, but the crew decided to try to repair it. "We thought about going back to Cape Town. That would be an easy reaction. But now we have all agreed to try and continue—it takes even more mental strength to do this than such an endeavor takes anyhow. The day we stand on the dockside in Itajai, I will be super proud," Herrmann said at the time.

Little did he know.

With Harris and Kuiper taking turns at the top of the rig, they managed to complete a decent patch-up of the spar during a light spot in the weather and got their race back on track, albeit more than 300 miles behind the early leader, *Holcim-PRB*. The Swiss boat would extend its advantage to more than 600 miles before being reined back in—such is the nature of ocean racing, where being too far ahead can be a curse.

Alongside the US entry and pre-race favorite, 11th Hour Racing Team Mãlama skippered by Charlie Enright, and the French-flagged *Biotherm* skippered by Paul Meilhat, the game was now all about hunting *Holcim* down by diving south toward the ice exclusion zone, looking for stronger winds.

If times were tough on *Malizia*, they were arguably even worse on *Mãlama,* where Enright and his team, which included veteran British navigator Simon Fisher, British-Australian sailor Jack Bouttell and Swiss soloist Justine Mettraux, were contending with cracks in both their rudders. They repaired one and swapped the other for the spare and crossed their fingers.

The first goal for everyone was the midleg scoring gate under southeastern Australia, where *Holcim* added to its wins in Legs 1 and 2 by taking maximum points. But it was behind them that *Malizia* first started to show its qualities in this part of the world. On the way to the imaginary gate—situated at longitude 143 degrees east—*Malizia* simply sailed past *Mãlama* in sight of her, as Amory Ross, the OBR on the American yacht, memorably described.

"They seem to be able to carry more sail and keep their bow up, and while we struggled in the waves to keep from nosediving, they were able to sail at the same speed but lower," he wrote.

In an interview after the finish, Enright was a bit less diplomatic. "It was kind of at that point in the race that everybody realized that *Malizia* was this Southern Ocean downwind machine—right before the scoring gate—and we were like, 'Oh f—,' you know…"

While the first half of this Southern Ocean drama was dominated by Escoffier's boat,

With nearly 500 miles to go before the finish, 11th Hour Racing skipper Charlie Enright wrote: "We have had highs and lows, seen joy, frustration, courage and heartache. We've been fast. We've been broken. Above all, thus far, we've been safe."

OPPOSITE: AMORY ROSS/11TH HOUR RACING/THE OCEAN RACE; PREVIOUS PAGE, LEFT TO RIGHT FROM TOP LEFT: AMORY ROSS/11TH HOUR RACING/THE OCEAN RACE, ANTOINE AURIOL—TEAM MALIZIA, AMORY ROSS/11TH HOUR RACING/THE OCEAN RACE, AMORY ROSS/11TH HOUR RACING/THE OCEAN RACE, ANTOINE AURIOL—TEAM MALIZIA, JULIEN CHAMPOLION | POLARYSE/HOLCIM—PRB/THE OCEAN RACE, AMORY ROSS/11TH HOUR RACING/THE OCEAN RACE, JULIEN CHAMPOLION | POLARYSE/HOLCIM—PRB, ANTOINE AURIOL/TEAM MALIZIA, RONAN GLADU/BIOTHERM

THE OCEAN RACE

THE OCEAN RACE
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ZURICH
A RACE WE MUST WIN
CLIMATE ACTION NOW!
CLIMATE ACTION NOW!
A RACE WE MUST WIN

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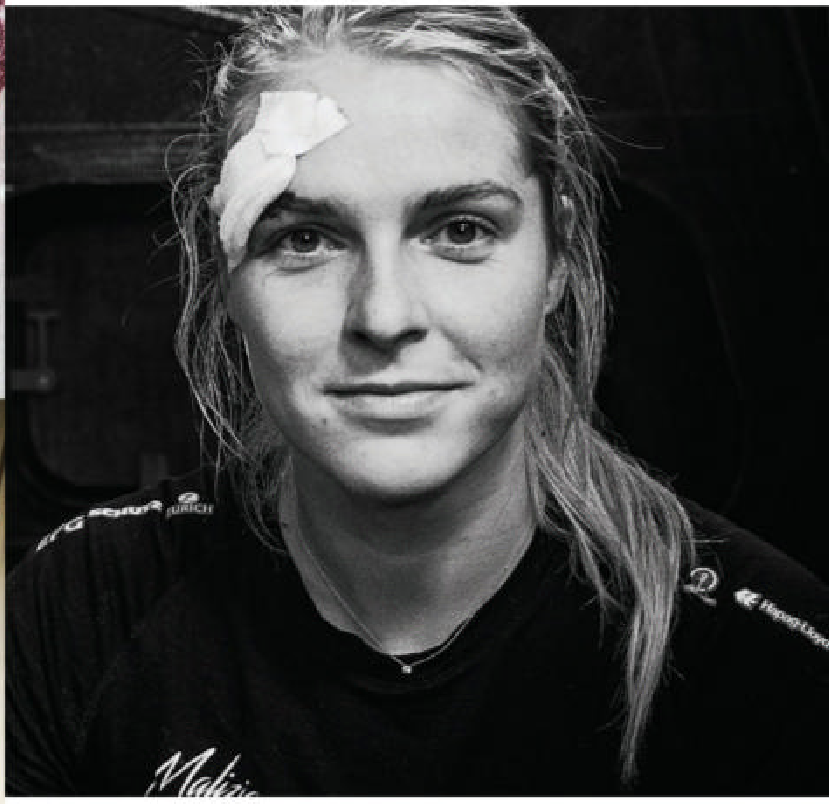
ANTOINE AURIOL/TEAM MALIZIA/THE OCEAN RACE

Drone footage captured during some of the fastest segments of Leg 3 reveals the design strengths of Team Malizia's IMOCA 60, which observers say is particularly strong in broad reaching angles and less prone to nosedives. A cockpit with more standing headroom than others, the designers say, contributes to greater comfort for the crew, and therefore better speed in the long run.

GO CIRCULAR
GO CIRCULAR
GO CIRCULAR

the second act in the Pacific saw a restart at Point Nemo and then a dogfight at the front between *Holcim* and *Malizia* in the run down to Cape Horn in big weather. It was a battle that continued up the South American coast, when three depressions produced the roughest weather, with the breeze topping 50 knots on three successive days.

And it was on the run to the Horn in big breaking seas that *Malizia* crewmember Kuiper was thrown out of her bunk when the boat spun off a breaking wave. She landed on her head, inflicting a concussion and a nasty wound, an incident that only underlined just how dangerous these platforms are in heavy weather. But the tough 27-year-old Dutchwoman, who was one of the brightest stars of the OBR show on this leg, just laughed it off, comparing herself to a pirate with an eye patch.



Whether it be a headsail sail change on *Holcim-PRB* or being tossed from a bunk for Team Malizia's Rosalin Kuiper, the nearly 15,000-mile leg tested the limits of both humans and boats before arriving into Itajai, Brazil.

The weather pattern after the Horn was a gift for *Malizia* and just what this band needed to hold *Holcim* off all the way to the finish. Herrmann and his jovial squad crossed the line in the early hours of the morning after 35 days at sea, having sailed 14,714 miles and with *Holcim* still 80 miles out.

"It's taking a few days, to be honest, to really realize what we've achieved because the last few days were really intense, trying to make sure we stayed ahead of *Holcim* and just really guaranteeing that we were really going to win this one," Harris said after the finish. The 29-year-old Englishman

JULIEN CHAMPOLION | POLARYSE/HOLCIM—PRB/THE OCEAN RACE (TOP), ANTOINE AURIOL/TEAM MALIZIA/THE OCEAN RACE (ABOVE), JULIEN CHAMPOLION | POLARYSE/HOLCIM—PRB (LEFT), AMORY ROSS/11TH HOUR RACING/THE OCEAN RACE (OPPOSITE)

couldn't help but look back to the mast damage early on and marvel at how they turned things around.

"It was such a big comeback," he says. "If we think back to week two of the leg, it didn't seem like winning was even possible, so I am very happy that we've managed to get there, and we're all slowly realizing it."

Harris was candid about *Malizia*'s performance woes in light air, but he reckoned the crew had mastered its weakest link: marginal foiling conditions in winds of 10 to 16 knots, when the boat is sluggish and won't get up and fly. The secret, he explained, is to sail with as much heel as possible and load the leeward quarter with all the movable weight to take advantage of a flat spot in the hull. "For the first minute or two, the boat will feel very slow, and then suddenly, it builds apparent and it starts taking off," he says. "We call it semi-foiling."

Malizia's performance in this leg moved them one point ahead of *Mãlama* into second place overall, five points behind runway leader *Holcim*. It was a bitter pill to swallow for Enright and his crew, who held off *Biotherm* all the way from before the Horn to the finish to secure the final podium position. They managed to do so despite trashing their mainsail when the autopilot dropped out, causing a violent crash jibe off the Argentinian coast. *Biotherm* was also wounded, having hit a submerged object and damaging a foil, and the Americans kept their mainsail damage secret while they effected a Herculean repair.

"We knew it was going to be tight with *Biotherm* at the finish by virtue of them being in the same weather system as us, so anything we could do to gain an advantage and get a jump on them we had to do," Enright said in Itajai. "We knew that they were facing adversity too, and if there was a chance that by them not knowing the news of our mainsail damage, they would be complacent, even for just a few hours, they were hours that we desperately needed."

Fisher, on his sixth circumnavigation, has experienced his share of challenges, but the bleary-eyed and unshaven faces of him and his teammates were all one needed to see to understand the toll this leg had taken on them, as well as their spares and tools.

"We always said it was going to be tough, but I don't think we ever imagined it was going to be as challenging as it was," Fisher said in a team statement after finishing. "As much as we would have liked to finish in first place, the fact that we've managed to get through this in spite of all the issues we have been dealing with over nearly 38 days is a great achievement.

"Jack has done a fantastic job as boat captain keeping the boat together, but there came a point in the leg that it wasn't about winning, it was about getting to the finish line. We knew it would be difficult and long, but we all agreed that we should make the most of it. It was about setting the mindset and enjoying it; you can't control what happens to you, but you can control how you react to it."

Arriving in Brazil, Enright knew the pressure was on, but he was feeling confident the scales would turn back in his team's favor now that the race had returned to the (supposedly) calmer waters of the Atlantic. For his sake, one would hope Harris' new-found confidence about *Malizia*'s performance in medium conditions would prove misplaced.

"We definitely have a boat that is more comfortable, shall we say, in the Atlantic, and we are happy to have turned the corner," Enright said. "If you could pick a boat for [Leg 3], you probably wouldn't have picked our boat, but I'm happy with where we are at for the rest of the race."

Enright placed a lot of emphasis on competitiveness at the end of an Ocean Race, not its early or middle stages, and he certainly wasn't ruling out winning this edition with four legs still to go, including a transatlantic from Newport, Rhode Island, to Aarhus, Denmark, in late May.

"We've always maintained that we want to be the team that is sailing best at the end of the race and improve the most from day one until the finish, and we still have that opportunity," he said. "No one here is worried; we're just going to keep chipping away, and when you chip, you get chunks."

Enright, 38, has been around the block in fully crewed ocean racing—this being his third Ocean Race—but he says he has not experienced anything like Leg 3 before.

"It's by and away the most difficult thing I've done," he says. "That's not even from a conditions standpoint; it's from a duration standpoint, but also the platform. There are people that have sailed in the South and people that have sailed IMOCAs in the South, and we are now in that category, and it's no mystery to me why this class moves in four-year cycles.

"I tell you what," he adds. "If I was doing the Vendée Globe, man, I'd want to do The Ocean Race. I'd want to get down there two years in advance and know exactly what we are dealing with, with the newest kind of design innovations in the boats and what have you."

Harris, meanwhile, was hoping to get himself fit and healthy for the next stage from Itajai to Newport in late April. And the young Englishman was daring to dream that *Malizia*'s performance in Leg 3 could yet herald something even more magical for him and his team. "We've proved that we are a really strong team in terms of development, and that's what this race is about," he says. "If we can keep developing and learning faster than the others, we can certainly start winning toward the end." ■

George Sipel and Michael Stark, from Michigan's North Cape YC, exit a busy weather mark at the 2023 Melges 15 Midwinter Championship.

IT'S A VIBE

BY MICHAEL HANSON

The Melges 15 has something for every age, and for older sailors, it's a much-needed return to big-fleet dinghy racing.

PHOTOGRAPHY BY MORGAN KINNEY

Just off our bow, an orange inflatable buoy bounces in the waves—our weather mark at the Melges 15 Midwinter Championship. The port-tack layline is not the smartest place to be, especially when there's a wall of starboard tackers visible beneath the boom. With 65 boats converging to a single point on Florida's Indian River, seemingly all at once, I know this approach is borderline stupidity, but we manage to tack into a miracle gap beneath a pack of fetching boats. Our rushed maneuver isn't pretty, but this is only my second day racing the Melges 15, and my dinghy skills are feeling a little rusty.

Up to this point, two days into the regatta, my teammate and I have made countless errors around the racecourse: bad starts, lousy gate decisions, and some pretty suspect fleet management—like that one time we took the low road out of the offset to hoist the spinnaker, only to get steamrolled by a third of the fleet. I haven't raced in a class like this since I was a young punk on the Club 420 circuit, and that was a long time ago. Here and now, at 32 years old, I'm lacking the muscle memory and spryness of my teenage dinghy years, and I sure could use them.

Somehow, we manage to round the mark with the leaders, and as we approach the offset this time, we make sure to stay high before hoisting. We wait for a gust to fill our neon-pink spinnaker before working down into a clean lane.

From previous races, we've learned our next move is crucial to a successful downwind leg; picking the right time to jibe helps avoid getting swallowed by bad air. It's tempting to go early, but with fresh breeze funneling off the shoreline on our side of the course, we commit to carrying on and riding a gust all the way to the layline. Near the bottom of the course, as boats around us jibe one by one, we agree to go a little farther to give ourselves more space. It's much tougher to overstand with a fractional asymmetric spinnaker than with a masthead, and we've repeatedly found ourselves low and slow into the gate instead of coming in hot.

"All right, let's go for it," I say, jibing the boat into an oncoming puff. When the kite fills and the hull releases onto a plane, my crew—Chrisy Hughes, a badass E Scow sailor with a do-or-die attitude and multiple national championships under her belt—lets out the most girlish whooping scream I've ever heard.

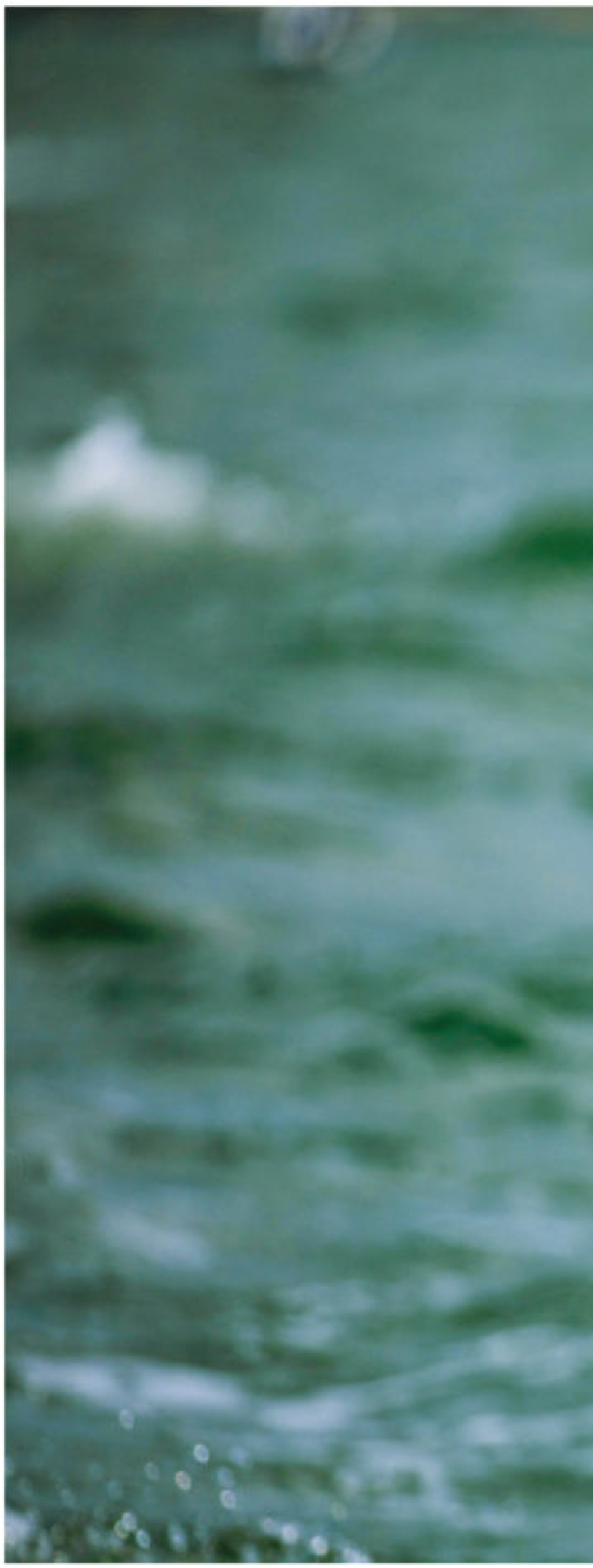
"Whooo-hoooo," she bellows, laughing as we skip downwind at 15 knots. We jump from 12th to third in a single downwind leg. At this moment, I understand what the Melges 15 hype is all about.

This lightweight doublehander, hatched in the cornfields of Zenda, Wisconsin, couldn't have come at a better time for sailing. As the top of the sport pivots to foiling and professional slugfests, the grass roots of American sailboat racing have been stuck in the past. Weekend warriors have been priced out of pro-laden classes, and when we tune into the America's Cup and SailGP, we see elite talents scamper across platforms we wouldn't dare step on ourselves. Though it's cool to watch the top of the game being pushed to such extremes, most sailors like me prefer beer to protein shakes when we roll up the sails for the day.

We also miss the old-school, down-and-dirty racing of our dinghy days, where decisions are quick and boathandling is a premium. The Melges 15 offers all of this, striking a balance between performance and accessibility. Unlike other high-performance dinghies, the boats don't tip over as soon as you step aboard, but they're reactive enough to where the whole of steering, weight placement and sail trim remains the divide between the front and back of the fleet. The open cockpit doesn't feel cramped like an FJ or C420, and the asymmetric kite is easy to handle for sailors young and old.

"It's not just for high-end, fast sailors, even though the boat is exciting," Andy Burdick tells me after racing as we stand on the dock watching people rinse their boats. As president of Melges Performance Sailboats, Burdick has been part of the Melges 15's development from the outset. "A few years ago, Reichel/Pugh drew some things up, and we went through several years of testing," Burdick says. "We never changed the hull or the foils, but it took us a while to get the rig concept to where we thought it was good for a wide range of people."

I grew up in the Midwest racing Melges 17s, which was some of the best sailing I've ever done. But with carbon-fiber masts, high aspect mainsails and masthead asymmetric kites, the 17 is a lot of boat to handle, and the class never took off because of it. Talking to Burdick, Melges wasn't about to make the same mistake twice. "We needed a boat that anyone could enjoy," he tells



me, "from junior sailors to family teams to more serious racers."

The primary goal of the Melges 15 is to bridge the gap between youth sailing and senior fleets, all the while allowing older people to get back into dinghy racing. A quick look around the boat park at the US Sailing Center of Martin County shows all these demographics represented, with brothers and sisters, husbands and wives, and fathers and daughters all present. "There's something for everyone," Burdick says. "That's why the 15 has taken off so quickly."

By June, 600 hulls will have been built, with US fleets centering primarily around New Jersey, Sarasota, Southern California, Traverse City, and the scow sailing clubs of the Midwest, all of which enjoy robust M15 schedules in the warmer months. But when the lakes freeze over and snow covers the yards up north, the Melges 15 Winter Series offers the perfect escape for people who want to sharpen their skills in the Sunshine State. With

Midwinters champions Clay Johnson and Elizabeth Tell hail from the Melges 15 hotspot of Long Beach Island, New Jersey, where the class has taken off over the past two years.

three events scheduled across January, February and March, more than 100 teams signed up in 2023, with an average of 67 competing at each regatta.

"These boats are a lot of fun," says Geoff Becker, who sat atop the standings after the first day of racing. "They get up and go pretty quick in not too much wind, and we're getting comfortable sailing it and learning how some of the things work on it."

A Southern California native, Becker coached college sailing for 16 years before becoming a full-time pro sailor and coach in 2009, giving him years of experience and an enviable pile of trophies in J/70s, J/24s, J/22s and Lightnings. As a collegiate national champion and two-time All-American, it's been a long time since Becker campaigned his own double-handed dinghy, and he couldn't be happier being back in the centerboard game.

"It's a really lively boat," he says. "Most boats this size aren't this lively, and the old guys just get smoked by the kids, but with this one, we can get up and go. If you're sailing at a reasonable weight, you can hang with some of the college kids in the fleet. A lot of them are really fast sailors, but sometimes we manage to outsmart them."

Becker and his crew, Monica Morgan, are also leading the Master division for skippers between the ages of 50 to 59. Other divisions include: Youth (under 21), Female, Grand Master (60 to 69), and Mega Master (70-plus). "The coolest thing about this group is you have high school kids racing against 70-year-olds," Becker says. "You don't see that dynamic in most fleets, which are usually pretty similar in age. In this fleet, we've had Olympic medalists competing against youth sailors. It's kind of a festival attitude around here too. There's a lot of hanging out, which reminds me of the Vanguard 15 days."

Across the boat park, competitors enjoy the laid-back beach vibe after sailing, tinkering with their boats as reggae music bumps from speakers and cold beers are offered free of charge. Many of them talk about tuning, stealing glances at each other's tension gauges, chatting about which combinations will offer the optimal performance. Though the Melges 15 was designed to be simple, the fleet is still in its experimental phase, with sailors playing with rig tension, jib car position, and mainsheet bridle height. Each Winter Series event holds debriefs, where competitors can ask the professionals how to improve. One such debrief is sponsored by Vakaros, makers of the hottest new GPS-based racing instrument, which gives unique insights on anything from boatspeed to heel angle. As per event rules, the unit's distance-to-line feature has been disabled, which I personally enjoy because it allows for midline sag, making it easy to take advantage of the fleet when it gets shy.

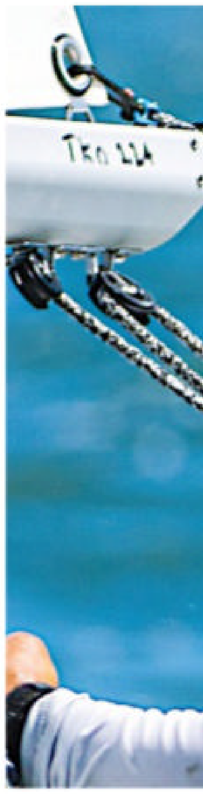
ACROSS THE BOAT PARK, COMPETITORS ENJOY THE LAID-BACK BEACH VIBE AFTER SAILING, TINKERING WITH THEIR BOATS AS REGGAE MUSIC BUMPS FROM SPEAKERS AND COLD BEERS ARE OFFERED FREE OF CHARGE.

Over my years coaching youth sailors, I've watched countless dinghy starts, and my foray into the Melges 15 in Jensen Beach is both fun and humbling. It's good to reverse the roles and get back into these situations myself. On one start, we pull off a sweet double tack to lane-up on the boats to weather of us on the line. Another time, we win the pin and hike our way into a massive left shift, giving us a top-three weather-mark rounding. We also have plenty of screw-ups, allowing ourselves to be hooked, shut out and luffed more than once.

Yet my lowest moment came in the regatta's sixth race, when I spotted my crew's 17-year-old daughter, Martha Hughes, setting up early on the line. Martha is one of my old students, and I figured I would hook her and use her as a marshmallow, a term used to describe unsuspecting sailors you want to start next to because you know you can roast them off the line. Savage, I know, to target a former pupil like this. But racing is racing, and if I have to sacrifice an innocent to get off the starting line, I will do it every single time. But with 30 seconds to go, a boat came from behind to try and hook us, and I had to sail deep to defend my hole. This gave Martha enough room to accelerate, and she was plowing over us within seconds of the starting horn.

"You want some butter with that roll?" she yelled back as she left us in her quarter-wake.

This is our primary topic of conversation as we head out



to dinner that evening. We have five teams from Minnetonka YC in Minnesota, so we decide to grab dinner as a group in the sleepy town of Jensen Beach. The cluster of bars and restaurants that form the main drag have yet to be swallowed by big corporate chains, giving the area a mom-and-pop feel. Fresh seafood is a highlight on any local dinner menu, and we spend our night exchanging banter about the day's racing, feeling relieved to be out of the winter snow and happy to be reconnected by this little boat.

The following day, the race committee completes two final races in 15 to 20 knots, and things finally start to feel like they are clicking on our boat. Our tacks are consistent; our tuning feels fast. Two good starts allow for two good finishes, and we finish the regatta 12th overall. Clay Johnson and Elizabeth Tell, from Toms River YC in New Jersey, take the podium after winning half the races in the series, a dominant performance from an experienced dinghy team.

Originally from Jamestown, New York, Johnson grew up racing E Scows with his dad on Chautauqua Lake before moving to Barnegat Bay. A veteran Laser sailor, he now enjoys being able to do three high-quality winter events while his E Scow waits for warmer days. "If you look at successful classes around the world," Johnson says, "the ones that have the ability to cater to all different people and sizes and skillsets are the ones that have staying power. There are so many different kinds of teams here, and the boat is a pretty good equalizer in that regard."

The diversity of sailors at the Melges 15 Midwinters is indicative of the broad appeal of the boat and the class, with women, masters, couples and family teams mixing at the top of the results.

Johnson also thinks the price point keeps people in the game. With a base price of $15,250, the boats are reasonably affordable for recent college graduates hoping to stay in dinghies. I have seen many former students completely quit sailing at the point in their lives when they have to choose between crewing at the local club or trying to get ahead in their careers. For most, boat ownership is impossible at this stage, but the Melges 15 has the potential to change that, especially split two ways. Former college crews, in particular, can benefit from this class, and Johnson's crew, Elizabeth Tell, is a perfect example.

Originally from Bay Head, New Jersey, Tell had a promising youth-sailing dinghy career before enrolling at Fordham University. Her freshman year, the sailing team signed up for an intramural dodgeball tournament as a team-building exercise, where she tore her ACL. By the time she healed in her sophomore year, she was on to other things, and her college sailing career never panned out the way she hoped. Eventually, she started racing E Scows at Toms River YC, where Johnson recruited her as crew.

"I try not to make absolute statements," Johnson says. "But she's one of the best crews I've sailed with. She hikes so friggin' hard. She's great at flying the spinnaker. We're on the same wavelength all the time, so anytime I have the chance to race with her, I jump at the opportunity. We always have a lot of fun."

And that's the best part of this burgeoning Melges 15 scene: the good old-fashioned fun. It's a place for families to play together, for old friends to reunite, and for young rock stars to mix it up with the old-timers of one-design sailing. Even the pros can get their tiller time. And for people like me, it's a return to a style of sailing I grew up on. Simple and pure—a little trim here, a little steering there. Weight in, weight out. Let's see how fast this thing can go. ■

DON Q
Don Q Snipe Regatta
"Live like the Old Man"
GEAR

THE SNIPE'S LONGEVITY IS A NOD TO THOSE WHO BUILT AND CONTINUE TO INVEST IN ITS FUTURE.

In the Old Man's Wake

By Dave Powlison, Photography by Marco Oquendo

Kathryn Bornarth and crewmate Ryan Wood epitomize why the Snipe class continues to fire on all cylinders—a lot of female involvement and a growing contingent of enthusiastic, post-collegiate sailors.

It's early April on Miami's Biscayne Bay, with an 18-knot easterly, gnarly chop and ribbons of sargassum seaweed—tough fare for racing any boat. We're at the 2023 Don Q Snipe Regatta, heading uphill and racing against competitors with decades of experience in the class, as well as a slew of young hotshots and some first-timers—40 teams in all. It's baptism by fire, my first real experience racing a Snipe. And like many who jump into the boat for the first time, I'm being served heaps of humble pie. About the only time my crew, Danielle Wiletsky, and I see the top of the fleet is when we cross paths on opposite legs of the course.

The upside is that we have a ringside seat to their techniques. At one point, we watch as the eventual regatta-winning team of Ernesto Rodriguez and Kathleen Tocke round the weather mark. He hands her the tiller extension and mainsheet, slides back to clear weeds off the rudder, then takes over again. Blink and we'll miss it.

"It's something we've practiced," Rodriguez tells me afterward.

Then it's back to the business of riding waves, Tocke at times with her face almost at the headstay when going down waves, then rapidly sliding aft as the ride nears its end. It's the product of years of muscle memory, and Tocke and Rodriguez are clearly in sync. Tocke, who first sailed the Snipe in 2008, says they don't talk much on their boat. "Occasionally, he'll tell me to hike harder," she adds, "not because I'm not, but more as encouragement."

Soon they're a speck on the horizon as we plod our way upwind to the mark.

We're not alone at the humble-pie buffet. Here at the Don Q, scores of top-notch sailors, ex-collegiate and otherwise, come with high expectations only to leave with egos battered and bruised by class veterans, many old enough to be their parents. Rodriguez has been at this for more than two decades. Plus, he regularly trains with the likes of Hall of Famer Augie Diaz, who has been in the class for 56 years and won more Snipe championships than space allows here, and Peter Commette, 36 years in the class, a former Olympian, a Laser world champion, and keeper of his share of big-time Snipe titles as well. "They taught me a lot," Rodriguez says. "I'm still part of that group, and we always go back and forth with information, sharing a lot about tuning and ways to best sail the boat."

The Don Q was started by class icon Gonzalo Diaz in 1966 and named after its rum sponsor. It's been held every year since, even during the pandemic. As boats set up at the host Coconut Grove Sailing Club, with the overflow at the US Sailing Center to the north, it's impossible not to notice the number of 30-somethings—not only as crew, but also skippers.

At a gathering at a recent Snipe event, Augie Diaz asked, "How many here are under 30?" Over half raised their hands.

So, how is it that a 1931 design is still going strong? With its 380-pound hull, unstylishly high boom, and an off-wind setup requiring a

There are rumors about a Miami-area warehouse full of an unsubstantiated number

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whisker pole, it's a quirky boat that doesn't align with modern metrics for success. Cue the Snipe class promotional video and enter Gonzalo Diaz, affectionately known as "Old Man." Born in 1930, his Snipe career began in Havana at age 15. He left Cuba in 1965, settled in Miami, joined the Coconut Grove Sailing Club, and began working his magic in the local Snipe fleet.

"He was the kind of fleet-builder who spent a lot of his private time helping people get into Snipes," says his son, Augie. About 30 years ago, he started a rent-to-own program. "He'd get a boat and pretty much let a prospective owner say how much they wanted to rent the boat for. The rental fee went toward the boat's purchase. If it took them five years to pay the boat off, that was fine with him. If it took 10 years, that was fine too." Augie admits that it's tough to tell just how many boats his father ran through this program, but he estimates it's well over 30.

"It's a great way to promote the boat," says Alex Pline, of Annapolis, "because those renting boats have skin in the game. The longer they rent the boat, the more they have invested in it and the less likely they are to give that all up."

Pline's fleet adopted a version of the Old Man's program in 2021. His wife, Lisa, says: "I love stealing good ideas. We're on our third boat and our fourth person, who just got busy with other stuff. But we were able to turn that boat over pretty quickly."

Rodriguez, also from Cuba, was a Laser sailor who met Old Man shortly after arriving in the States. "He gave me a boat to use for free and helped me out in a bunch of ways, including getting me in regattas when I couldn't afford it."

Greg Saldana, another Old Man recruit, had never sailed a Snipe but showed enough interest to catch Diaz's attention. "We met at the US Sailing Center when there were just trailers and a bunch of boats. Here comes this little guy in a van. He gets out, and he's carrying a briefcase, pen and a piece of paper, ready for me to sign. I said, 'Wait a minute. Before I sign, can we first go sailing?' He really didn't want to because it was really hot out, but we went. We didn't even get out of the channel when he said, 'You're going to do fine. Let's go back.' And I signed."

The list goes on, and although Old Man passed away in early March 2023, Augie carries on his father's legacy. "He had a love for the class that was infectious. I don't know how many people I've brought into the class," he says, "but I'll always be behind the number my father brought in. I keep trying to catch up to him. I don't keep count. I'm just going to keep doing what's good for the class."

There are rumors about a Miami-area warehouse full of an unsubstantiated number of Snipes—usually in the double digits—and it's clear who the supplier is. As my crew observed, "It seems almost every boat here was either owned by Augie or is being borrowed from him for this event."

That includes us. We quickly get a taste of another component of the Snipe's continued success as Pline comes over while we are setting up the boat. He helps us get the rig base settings correct,

of Snipes—usually in the double digits—and it's clear who the supplier is.

Snipe class regeneration traces back to the late Gonzalo Diaz. Today, that includes Carter Cameron and crew David Perez (left), former collegiate sailors, and Rogelio Padron and Vladimir Sola (below), shown on mark approach at Miami's Don Q.

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and Andrew Pimental, the US Snipe builder who is right next to us in the parking area, jumps in as well.

"Everyone's always helping each other," says Charlie Bess, who crewed with Enrique Quintero to take second in the Don Q. "It doesn't matter if it's someone's first time in the class or someone who's been around for decades. You can ask them anything."

The assistance doesn't end in the boat park. Just after the start of the first race, our hiking stick universal breaks, and as we are approaching the club dock, two people rush to see what had happened. It's Saldana and his crew, Grace Fang. "We got out to the end of the channel and decided we didn't want to deal with those conditions," Fang tells us. They quickly offer up the tiller and hiking stick from their boat, and we make it out for the second race. With a no-throw-out series, it was a tough way to start a regatta, but the hospitality put it all into perspective.

Later that evening, I was about to deal with our universal repair when I find our original tiller and hiking stick back in our boat, repaired and ready for the next day, no doubt the work of Saldana and Fang. We discover later that Saldana was Old Man's regular crew and close friend for many years. Saldana and Fang are not here just for the racing either.

"We couldn't attend the memorial for Old Man," Fang says, "but we thought just being here for this event would be a good way to honor him. I think there are others here for the same reason."

On the water, top Snipe sailor Jato Ocariz serves as the fleet coach, coming alongside boats between races to offer advice. On the second day, with the wind now around 15 but still a strong chop, he has us sail upwind so he can check our setup. "Put two more turns on your shrouds and move your jib leads back," he says. And just like that, we are able to point better and log our best finish, just about midfleet.

One of the class's most successful endeavors is recruiting younger sailors. Bess is a self-confessed poster child for the effort. "When I was 15, Augie sent me an email, along with around 10 other juniors in our program. He got us a boat, provided coaching and helped us out. That's how I got into the class," Bess says. Now she's the Miami Snipe fleet captain and on the class's "next gen" committee, which focuses on attracting 30-somethings. "The idea behind it is that a lot of people do junior sailing, then college sailing, graduate and discover they have no place to go. We try to make the point that we are that next step."

What is it about the Snipe that appeals to that demographic? For starters, there's a practical component. Commette says: "Over the last 20 years, people have won Snipe world championships in boats that were 10 to 15 years old. I just sold a 1998 boat I wasn't racing anymore. It's one of the best boats I've ever sailed, and it could win a world championship easy. That's the great thing about the Snipe. You can get an old boat and be competitive. You can get a used Jibe Tech or Persson for $5K, put some time into it, a couple of hundred dollars to update lines and things, and win a Worlds with it. That's what makes it so fantastic for young kids."

The boat is also a technical step up from junior and college sailing boats, but not so much that it's intimidating. The spreaders can be adjusted to accommodate a range of crew weights, the mast can be moved fore and aft at deck level with a lever or block-and-tackle system, and there are the usual jib and main controls. Class veterans Carol Cronin and crew Kim Couranz are at the lighter end of the weight spectrum, which, according to Diaz, is optimally around 315 to 320 pounds, making it well within reach for mixed-gender teams and smaller teams. "There are enough controls that you can customize the boat to how heavy you are and how tall you are," Cronin says. "Like the Star, the bendy mast keeps the boat exciting to sail. It takes a little more technique, but it also means you can tune the mast to fit a wider variety of weights." Despite a breezy first two days, Cronin and Couranz finish ninth overall.

Then there's the class motto: "Serious sailing, serious fun." That appeals to the younger crowd. "I've always thought it sounds a little cheesy," Bess says, but it's entirely accurate. Taylor Schuermann, who crews for Diaz, says: "There's a tremendous amount of enthusiasm, now more than ever, from that group. We have a WhatsApp group, and on Monday and Tuesday people are already asking, 'Who's going out this weekend?' People are chomping at the bit to practice, sail together, and really put in that effort. Then when you show up to a regatta, no matter how long you've been in the class, it feels like a family reunion."

And like a reunion, there are always those moments when you remember who is absent. Fittingly, the regatta's Saturday night Cuban dinner includes a celebration of Old Man's life, with photos, videos and a lot of storytelling.

"It's all about peer groups," Lisa Pline says, "and keeping it fun and competitive."

Carter Cameron got into the lease-to-own program in Annapolis, says Evan Hoffman, the current Snipe class secretary. "All of a sudden, he started inviting all of his friends and became sort of a lightning rod for the fleet. Now he's in San Diego, working for Quantum, and he's doing the same kind of thing there."

Over the years, the Snipe has withstood a lot of competition from startup classes that have the mentality of keeping it simple and easy.

There is a downside, however, to the youth recruiting scheme, Pline says. "Every time we bring a new kid into the class, I think, 'Oh, great, another kid who's going to kick my ass.'"

The class also hosts under-30 regattas. "We found that if you can get a younger person interested in a Snipe, they'll get other people their own age interested as well," Pline says. "The U30 events really help with that. The idea is that it's a regatta for younger people—it's the older generation, if you will, reaching out to younger sailors, loaning boats for the event, doing whatever we can to make it successful."

Over the years, the Snipe has withstood a lot of competition from startup classes that have the mentality of keeping it simple, easy, and all the things that would make it a Laser-like doublehanded boat. "But the problem is," Commette says, "that's a dumbed-down type of sailing. While the Laser has excelled for what it is, it doesn't teach you how to do so many other things necessary to become a really good all-around sailor. With the Snipe, you learn so much more, which is why so many America's Cup champions, so many Olympians, so many other world champions have had significant Snipe experience."

"One of the things that's always appealed to me," Cronin says, "is that, if you look at Old Man and Augie, you realize, 'I can keep doing this for a long time, if I stay fit and stay interested.'"

I can relate. As a late adopter to the Snipe myself—let's just say a few years past my retirement—I now know firsthand from the Don Q that I've got a long way to go to get to the front of the Snipe fleet. Thankfully, I'm guided by Old Man's legacy and the efforts of many others in the class. Keep at it, ask the right questions, and someday I might be within shouting distance of Rodriguez. I'm sure many of the new kids in the class hope for the same. ■

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WINGING IT DOWN THE RUN

Sailing downwind on a boat that can go wing-on-wing opens up a lot of speed and tactical options for the downwind leg.

IF conditions warrant, some boats, like J/70s, FJs, Collegiate 420s and Snipes, successfully wing for the entire run. And for other boats that carry asymmetric spinnakers, such as J/105s and Melges 20s, brief moments of winging can present gains, such as when jibing, (a late-main jibe), coming into a leeward mark gaining an overlap, or shooting the downwind finish line. It's a powerful technique to have in your toolbox these days, so let's dive deeper into the art of the wing, how to do it and when to do it.

There's usually no question when in the middle wind ranges—from 8 to 14 knots—where the wing technique works well. By doing so, you'll sail less distance without sacrificing much speed, getting you to the leeward mark sooner than someone who reaches back and forth. But in light air, it's often too slow to wing, and the jib or kite doesn't have enough pressure to fly well. Also, when the wind is light, the main falls into the middle of the boat, causing an unintentional jibe. You need enough pressure to hold the sails firmly in the winging configuration to make it work.

In the crossover zone, when you are unsure if winging will work, it can pay to give it a shot. If it doesn't feel powered up and fast, abort the wing by continuing your turn, jibing the boom, and flattening onto the new jibe. The cool thing with this move is that you can get a boost of speed during the flatten, especially in a dinghy. Experiment with winging in the crossover wind range, then aborting, making it a late-main jibe.

At the other end of the spectrum, when it gets super windy, boats like the FJ, 420 and Snipe are still winging and might even plane on the wing. For heavier boats that wing, like the J/70, there comes a time to abandon the wing and start planing on the reach. It's all about your best VMG to the mark, knowing your boat, and understanding when to transition as the breeze changes. In puffy conditions in the planing crossover range, 14 to 18 knots, the true masters of downwind morph from one mode to the next, putting hundreds of meters on the competition.

When winging, you must have a big lane behind you because winging is difficult in bad air. Also, boats behind you that are also winging throw a big wind shadow. Always work to find a nice lane before winging. Some people call this a seam in the fleet, a corridor of nice pressure with no boats behind you.

WINGING ANGLES

For those unfamiliar with winging and the angle changes created by doing so, one way to think about it is to compare it to a symmetric spinnaker boat, such as an Etchells or Lightning, that can square the pole back in a medium breeze. In light air, those boats reach back and forth with the pole near the headstay. Once the breeze increases enough, they square the pole back and sail deep. This is a similar angle to winging. A boat with the spinnaker squared back is basically the same as being wing-on-wing. When in this mode, you'll jibe through about 20 to 30 degrees.

I always look forward, toward the gate marks or finish line, to determine if I am sailing the least distance. Visualize your new angle if you were to jibe and question whether it would be closer to the mark. If so, and the lanes are free, do it. Usually when winging, I want to see the leeward mark right over the bow or just between the jib or spinnaker and the mainsail. While doing this, let's say you get a lift. The jib or spinnaker suddenly feels less powerful, so you head up to get to the optimal angle again with the sheets pulling. Now the gate or finish line has dropped out of your field of vision, behind the main. That tells you it's time to jibe. Conversely, if you get a big header while aiming at the gate and now appear overstood, abandon the wing and go back to a reach. The key is to point the boat at the gate or finish line in whatever configuration you need to be in for the given wind conditions, assuming you have a good lane.

TACTICAL WINGING

A key to sailing well downwind in any boat is to satisfy two basic rules: Sail the jibe that takes you most directly toward the leeward mark, and sail in the most breeze. If you can sail toward the mark while in nice pressure and in a big lane, you'll hit a tactical home run. When you are in a boat that has various modes, like reaching and winging, always use the most appropriate mode to help you. Here are a few examples:

A. You round the weather mark in a left shift and want to go straight downwind on the header. It's blowing 10 knots, so winging will provide the best VMG. After rounding the weather mark, you reach for a bit until a lane opens up. Now you have to decide which jibe to be on while winging. You could simply wing on the starboard jibe, or jibe over to port and then wing. Because you are headed and happy, the correct move is to simply bear away and wing, staying on starboard.

B. You round the weather mark in a lift, so the game plan is to jibe to port. But there's a cone of bad air at the top of the course. You reach for 30 seconds to a minute, eager to jibe and go the other way. With a train of boats sailing straight out of the mark with you, winging away would put you in bad air. So, the best move is to jibe onto a port reach to quickly exit the train of boats and their dirty breeze. Once clear of the bad-air zone, let's say 50 to 100 meters, go into winging mode to sail the header toward the leeward mark on the port jibe. You'll be in a nice lane, sailing low and fast toward the leeward gate.

C. You're leading a tight race or might be just ahead of a group of boats, and you round the weather mark. Don't immediately wing. If you do, you'll likely get covered. Here, the move is to round the weather mark, reach for a while, and be patient. Once the boats behind you wing, then you can establish a nice lane and wing. If you reach for a while and feel like you should be winging, but no one around you is, and you want to get away from nearby boats, jibe to port, as mentioned earlier, reach for a little bit to get away from the group, and then wing into a nice lane.

D. If you round the weather mark in a lift and have no boats to worry about behind you threatening to steal your wind, a technique unique to the J/70 is you can get into a wing by bearing away and slowly jibing the boom. It allows you to quickly sail the other way downwind, as if you had completed a full jibe and then winged the kite. On smaller boats that accelerate more during maneuvers, it's faster to jibe, flatten, and then wing the jib.

PRACTICING AND SPEED

Winging well takes practice and communicating to your team about the next move. It's key that everyone is on the same page. With all the tactical options in the J/70, the fleet has developed

Winging has become a powerful tactical tool in J/70 racing, but there's a time and place.

PHOTO: HANNAH LEE NOLL

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its own lingo about turning while winging, "left turn 1 degree here" or "right turn 1 degree," because up and down can get confusing with sails on both sides of the boat. For winging or exiting the wing in a J/70, identify the sail you are jibing. For example, say, "jibing boom to a wing," "jibing kite to a wing," or "exiting wing with boom over and a left turn." In small boats, it's a little more straightforward, but communications need to be defined regardless. A few examples are: "Let's wing here," "let's jibe then wing," and "let's do a wing-on-wing jibe." And to exit the wing, "jibing the boom to a reach."

Sailing fast while winging is critical, so let's discuss what you should focus on. The short version is, once you have winged a jib or a spinnaker, sail slightly up toward the jib or spinnaker on a broad reach, or a "high wing," as some call it. You're trying to not sail dead downwind because it's faster to be slightly up toward the forward sail in a high wing. There's a sweet spot, which is where the sail would want to fall in toward the boat and assume a reaching position, if you were to head up a few more degrees toward the jib or spinnaker. If you see that happening, bear away a few degrees until it's stable and happy. At that angle, the jib or spinnaker will be powered up.

If you're holding the sheet, you can feel the sail pulling nicely. Bear away a few more degrees to a dead downwind angle and the sail will lose a little pressure. Bear away a little more and you will feel the slowest winging situation possible—by the lee where the sheet pulls the least because the main starts covering the jib or spinnaker. I see a lot of kids doing this in the FJs and 420s, and sometimes adults in the J/70s. You can end up there by turning down accidentally, having a wave push the bow down, or possibly by a windshift lifting you. To avoid sailing too low or two high, stick to the rule of sailing high on the foresail, but not so high that it wants to collapse in on itself. This powered-up mode is fast. To keep it here, you need to constantly test the ups, look at the telltales and masthead fly, and feel the power in the sheet.

If you are at the perfect wing angle and notice a lift (the masthead fly goes from the weather corner of your boat to the center of the stern), the sheet loses pressure, or you just feel like the boat has lost pressure, head up if you want to continue straight. Or immediately jibe to a reach, throwing the boom over, flattening with extra speed onto a header, then bear away and wing again. The jibe maneuver when lifted is super-fast and allows you to quickly sail the header downwind. If performed before others around you, it allows you to lead on the new, long, headed tack. All of this is tactical gold.

Now that you know how and when it's best to go wing-on-wing, let's explore seven top winging moves that can make your race.

Cut the corner. Typically, everyone sails out of the weather mark on starboard, reaching, unless conditions call for an immediate jibe set. If you can wing before the boat in front of you, you cut the corner on them and still maintain a starboard-tack advantage. The boat in front ends up in a difficult situation in that they want to jibe to aim for the gates, but you have borne away inside them and cut them off, and you're still on starboard. I love using that move in a J/70. I've been passed by it, and I've passed boats using it.

Be the first to wing. If you round the weather mark with a big enough lead or a gap behind you and instantly wing, you can gain huge on the boats that have not yet done so. Doing that while leading can instantly break the race open. While others are reaching and waiting for the opportunity to wing, you're already sailing deep, headed straight for the leeward mark, and you're gone. You can end up winning the race by hundreds of meters. And if you happen to have a gap behind you, winging before the group ahead allows you to cut the corner on them.

Paint the competition into a corner. In the same realm of cutting the corner, this move occurs in the corner, near the layline. Let's say you're going downwind, reaching on port jibe, and following someone who is also reaching. As you approach the left corner (looking downwind), knowing they will jibe soon, wing behind them. Now you're sailing deeper and cutting the corner. When they jibe, you now have a perfectly matched racing setup to jump them and steal their breeze. As the boats converge, watch their masthead fly to see where their wind is coming from, and then jibe over by simply throwing your boom with a right turn and flattening onto their breeze. It's a quick move and takes the wind out of their sails, literally and figuratively. From here, either you roll them, or they're forced to jibe back into the corner, reducing their options and forcing more maneuvers. You can also "paint into a corner" against groups of boats.

If in the back of the fleet, wing immediately. Another time to go right into the wing mode is when you're doing poorly. Maybe you were OCS and went back now to find yourself in last place, desperately hoping to catch up. Wing-on-wing can give you that opportunity. Once rounding in last, you can always lighten the mood by pointing out the good news of having a massive lane, and then instantly wing. I've seen a lot of people in that position catch up a ton downwind just by getting into the wing and keeping it the whole run, sailing less distance.

Sail perpendicular. When coming into the finish line or a leeward gate, sail perpendicular to reduce distance. By winging, you cut the corner on any boats ahead that are reaching. I think of it as sailing one side of a triangle while they sail two, by extending forward, jibing and reaching back. You can get to the finish line sooner with this move, even if the wind is a little light to wing.

There is also a specific scenario coming into a gate where you can use it to get room. If you are closely trailing an opponent and both of you approach the gate just outside the zone (aiming at the middle of the gates), you can wing behind them toward the mark to enter the zone first while they extend forward, then jibe to head back and round the gate. You are now inside and have room. Their jibe opens their stern, and you have entered the zone first and inside. This doesn't happen often, but it feels nice when it does. It leaves you in a much stronger rounding position to start the next leg.

Ping the competition. You're on the port jibe near the layline, approaching the right-hand gate (looking downwind), and there are other port-jibe boats overlapped to your right. They're going to have room on you, probably leaving you on the outside of a big pinwheel around the gate mark. In this situation, you can jibe to starboard and reach toward those boats to take them out past the layline, then lead them back clear ahead and rounding ahead. Chances are, they might not anticipate you doing this, but even if they do, they have to stay clear. For safety within the rules, do this well before the three-boatlength zone, maybe as far out as five or six lengths so there's no question you're outside the zone. The boats you're reaching toward can even be winging on the starboard jibe, but they have to either head up or jibe if on port because you're the leeward boat. In a classic match-racing move, you've reached them off the racecourse, forcing them to overstand. They're typically flailing at this point and probably starting to yell; bear away once you feel the geometry is correct and jibe toward the mark, breaking the overlap with them and entering the zone clear ahead. We call this the ping move. It can also be done at a downwind finish line.

Vary modes to manage your lane. If you're wing-on-wing and someone is sailing at a different angle, about to encroach on your breeze, go into reach mode until you find another clean lane. Then bear off and wing again. If you maximize your time in big seams or lanes, you can do some damage downwind. ■

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Start calling relatives as soon as possible after the start. This first few minutes is a critical boatspeed part of the race, and the sooner your team can get locked in, the better.

PHOTO: NICO MARTÍNEZ

COMMUNICATION, RELATIVELY SPEAKING

Calling relatives is important. I'm not talking about calling your parents (but you should do that too). I'm talking about monitoring and communicating your relative performance in a sailboat race.

BY MORGAN TRUBOVICH

THE importance of comparing your performance to another competitor during a race is an underrated part of sailing a boat competitively. We hear a lot about having good onboard communication about what's happening on the boat. While that's true, it's also important to communicate what's happening outside the boat and what's happening relative to your nearest competitors. So, let's cover some techniques to improve this aspect of your next race. For the purposes of this article, we will focus on calling upwind relatives.

It's best to start calling relatives as soon as possible after the start. This first few minutes is a critical boatspeed part of the race, and the sooner your team can get locked in, the better. Oftentimes, the teams that get their performance going the soonest after the start are the teams that emerge from the fray in the best position.

Once you start calling relatives, do so with confidence, announce that you are calling relatives, and identify who or which boat you are calling relatives against. For example, "I have us with (name of boat)." Knowing who you are gauging performance against is important.

On a boat with true wind direction displayed somewhere, announce that number. For example, I might say, "Starting wind direction is one-eight-five." If the wind direction changes during the lineup, this will be valuable information to provide accurate comparisons.

If there's no TWD displayed on your boat, or you don't have instruments, you can use your compass heading instead and say something like, "Starting heading is one-four-six." It's not quite as accurate as TWD, but it's better than nothing.

Always refer to your boat first. For example, I might say, "Higher, same speed." To avoid any confusion, don't refer to them first. If they are higher than you, state, "We are lower." Be consistent and always use the same process, no mumbling. Remember, the goal is to let your teammates know how you're doing.

Some examples of describing clear-cut VMG differences are "higher, faster," "lower, slower," and "same angle, same speed." However, if the speed and angle are split, you will need to judge which VMG is superior. For example, I might say, "Higher, slower, VMG them," or "lower, faster, VMG us," or "higher, slower, VMG even."

Accurately and confidently judging performance and VMG differences takes time and experience, so if you're new to it, there is no time like the present to start practicing. And speaking of practice: A great opportunity to get in the rhythm of calling relatives is during your pre-race tuning-partner lineups. (Of course, you do that already, right?)

At the beginning of an upwind lineup, try this technique: Imagine you were to tack. Where would you end up? Would you be behind them? Would you cross them? Would you hit them at their mainsheet winch? Their front hatch? Start every relative performance call with this information. For example, I might say, "If we tacked right now, we would miss them by 6 meters." One minute into the lineup, I might say, "If we tacked right now, we would hit them on their transom; we have gained 6 meters since the beginning of the test." Another minute later, I might say, "If we tacked right now, we would hit them at their mast; we have gained one boatlength since the start of the test."

If you are clearly outperforming a competitor above you, or if they are in a compromised position, make the announcement that you are switching relatives to another boat. For example, I might say, "(Name of boat) won't live there for long, switching to (name of new boat or sail number)."

If there are no boats above you to call relatives with, announce you are going to hike instead. This lets your team know why you've gone silent. For example, I say, "No gauges above us; I am hiking." Or take it a step further and challenge your teammates to hike even harder. I say, "No good gauges above; showing the young guys how to hike."

Having been a pro sailor and coach for a long time, I've experienced my share of situations where a lack of calling relatives or poor calling in general leads to unwanted outcomes. To prevent this from ever happening on your boats, let's run through a few common scenarios.

SILENCE IS DEADLY

What happens: We start the race and nobody says anything.

The result: We come off the line in a low mode that is not optimal VMG. The boats above us are able to live in an otherwise compromised position all the way to the layline, which costs us a lot of places.

The fix: Identify immediately who you're calling relatives against and make it clear how your team is going against them.

HEAD IN THE CLOUDS

What happens: We don't take note of the TWD or heading when we start the relative calls. We state we are losing a lot to the boat above us, oblivious to the fact that the wind has lifted us 15 degrees.

The result: We start changing settings, away from what we know, to try to improve based on the feedback, but we only perform worse and lose a lot.

The fix: Announce the TWD or heading when you start the relative calls. Then you can allow for TWD/heading changes in your analysis of performance. For example, “We are doing well against the boats above considering we’re in a 15-degree lift.”

COMMS BREAKDOWN

What happens: We say, “They are lower.” The helmsman puts the bow up to sail a higher mode because he only hears the words “are lower” (the other words err out in the wind), and the helmsman and trimmers assume we are the lower boat.
The result: We sail too high and slow, and get rolled by the boat above us.
The fix: Always talk about your boat first, not the other. In this case, we were already higher and should have said, “We are higher.” Instead, by switching between us and them, we create confusion.

STAY ON TASK

What happens: We aren’t going well, so we stop calling relatives.
The result: At a time when we need to be honest and identify there is an issue with our performance, we go quiet. Nothing is done to address our performance issue, and we go backward because of it.
The fix: No one wants to be the bearer of bad news or a Negative Nancy, but this is an important part of the race. Be consistent. Be honest. Keep the process the same, rain or shine.

LOST IN TRANSLATION

What happens: We say, “Higher, slower.”
The result: Our skipper responds, “Is that good or bad? Are we gaining or not?”
The fix: If the speed and angle are split, finish your call with whether that mode is a gain or a loss.

ATTENTION DEFICIT

What happens: After a very long lineup, you are unsure as to whether it has been a gain or a loss over all the changes that have come and gone.
The result: You don’t really know how you have gone over the long term and just make something up.
The fix: From the beginning of the lineup, announce where you would be if you tacked. Five minutes later, you will know how you have gone by checking in using the same method. Maybe you haven’t gone well in the last 30 seconds, but overall you have moved forward by two boatlengths.

HANG UP AND DIAL AGAIN

What happens: The boat above you has a poor start, and now they are in your quarter waves going even worse. You keep calling relatives on them because they are closest to you.
The result: Your team thinks they are going very well based off your calls. But the boat you are calling is compromised. The next boat up is outperforming you, and you have not identified that your team needs to change modes to match.
The fix: As soon as the boat you are calling relatives against is compromised or going really badly, look for the next boat above them to keep improving your mode.

LOST IN SPACE

What happens: All the boats above you tack away. There are no other nearby boats to call relatives against, so you go silent.
The result: Your skipper yells, “Please keep calling relatives!” and loses focus in the rage.
The fix: As soon as there are no boats above you to call relatives against, announce that fact. And hike your butt off.

The takeaway from all these scenarios should be that it’s critical to continuously call your relative performance against your competitors, and when you do so, be clear, confident, accurate and consistent. Doing all of the above will help relieve tension on the boat and improve performance. If there is no one left to call relatives against, hike hard and do the rest of your tasks well. Enjoy yourself. And don’t forget to call your mom or dad after racing to tell them how well you went. If anything, it’ll be the most important call of the day. ■

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BUDDY ON THE BIG SCREEN

A new movie about America's great sailor is a must-see, but be ready to take notes; there's a lot to learn from a lifetime of excellence on and off the racecourse.

IN the spring issue of *Sailing World*, I authored a column that posed a simple but important question: Where are our modern-day sailing heroes? And now, with a new film featuring the extraordinary sailing career of Buddy Melges, I'm still wondering.

The first public screening of this 85-minute documentary was at the Annapolis Film Festival on a bleak, rainy Saturday morning in March. To my surprise, 600 people showed up to see this film about the most accomplished racing sailor of our era. His accomplishments are awe-inspiring: Olympic champion, winning America's Cup helmsman, Star-class world champion, superstar of numerous Scow classes, iceboat champion, three-time Rolex Yachtsman of the Year. He's an author, a modest, down-home guy who likes to spin a good yarn, and a consummate outdoorsman who found great joy sitting in a duck blind on a cold day.

There's no one quite like Buddy, and while I've said it once, I'll say it again: Our sport

At this writing, Buddy Melges is 93 and no longer sails. But he follows the sport closely, including guiding his grandson, Harry Melges IV, who was named Rolex Yachtsman of the Year in 2021, at the age of 21. PHOTO: COURTESY *MELGES: THE WIZARD OF ZENDA*

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needs heroes to inspire all of us, and this film, *Melges: The Wizard of Zenda*, is just the inspiration we need. It's a must-see for every sailor.

The film was the vision of longtime broadcast journalist Anne Peterson, who spends time in Lake Geneva. Her original intent was to produce a modest documentary on the history of the Lake Geneva YC in Wisconsin. But in 2014, the project took a turn when she decided to focus on Melges himself. Peterson hired veteran filmmaker Mark Honer to direct the film, and over the next six years, they interviewed prominent sailors about Melges' life and his impact on sailing. Among the notables featured are Dennis Conner, Bill Koch, Australian America's Cup winner John Bertrand, Peter Harken, his Olympic crews Bill Allen and Bill Bentsen, his sons Hans and Harry, champion scow sailors Brian and John Porter, inland-lakes historian Tom Hodgson, Hall of Fame sailor Jane Pagel, filmmaker Dick Enersen and myself.

Honer spent years diligently searching for footage, ranging from his subject racing at a young age to his Olympic and America's Cup victories, and the film sequences show just how thorough Melges was in his preparation. Bill Koch defines Melges' gift as a sailor as "art." John Bertrand adds, "Buddy Melges is the greatest sailor America has ever produced."

The question I had as I watched the film was what attributes does he possess that helped him stay at the top of the sport in diverse disciplines? Melges certainly has a talent for reading the wind, and an uncanny knack of placing his boat in the best position to take advantage of windshifts and gusts. He spent more time studying the mechanics of how to sail boats. He would work out all the kinks of boathandling and sail trim. He made it easy to handle the boat in a way that he never had to lean in and stop hiking to adjust any lines. Melges also understood the value of practice and always spent extraordinary amounts of time on the water. He started working in his father's shop at a young age and learned how to make boats easier to sail and faster, eventually custom-building his boats for the specific capability of his crews.

In 1978, Melges and his crew, Andreas Josenhans, entered the Star World Championship to be sailed on the Berkeley Circle on San Francisco Bay. The Circle was noted for strong thermal winds in the summertime. The defending champion, Dennis Conner, remarked to Buddy's wife, Gloria, before the regatta that Buddy was at a disadvantage because he was racing with his own sails. Gloria just smiled at the comment. Melges had prepared for the Star Worlds by crewing for the 1975 world champion, Ding

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20.0°P	0.0	-1.1	0.4	0.4	-1.2	-1.0	-0.9	-0.8	-1.2	-1.0	-1.0
10.0°P	0.0	0.2	0.5	0.5	0.2	0.3	0.5	0.8	0.9	1.0	1.0
0.0	0.0	1.2	0.6	0.5	0.8	1.0	1.1	1.1	1.2	1.3	1.3
10.0°S	0.0	1.3	0.8	0.7	1.0	1.0	0.9	0.9	1.0	1.0	1.0
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Honer spent years diligently searching for footage, ranging from his subject racing at a young age to his Olympic and America's Cup victories, and the film sequences show just how thorough Melges was in his preparation.

Schoonmaker, at the Worlds the previous year. Based on that experience, he spent the winter working on ways to improve his Star. A fleet of 99 boats were on the Berkeley Circle, with several previous world champions racing, including Conner, Tom Blackaller, Bill Buchan and Lowell North. Melges and Josenhans won the first three races by large margins and rounded out the regatta with a third and a fourth. The pair were so far in the lead, they did not have to sail the last race. One year later, they defended their title by winning in Marstrand, Sweden. His legacy in the Star class was secured.

Like many great athletes, his career arc is filled with examples of underperforming before becoming a champion. At the age of 29, in 1959, his first attempt at winning the Mallory Cup at the Men's North American Sailing Championship did not go well. He lost to Bill Ficker, Ted Hood, Gilbert Gray, Robert Mosbacher and George O'Day. He was unfamiliar with racing in a regatta where the format required the contestants to swap boats after every race. At the time, Melges said, "I learned a lot." He spent the next year practicing by sailing on equal boats. He qualified for the next three Mallory Cups and won them all. Melges and his longtime sailing friend from Lake Geneva, Bill Bentsen, then teamed up to race a Flying Dutchman. At their first major regatta in 1963, Melges and Bentsen had a below-average performance. "With all the boat tuning going on, boy, are we out of touch," Melges said.

"Don't be too sure about that," Bentsen countered.

They spent the next winter working on

Bill Bentsen, Buddy Melges and Bill Allen sport their US Sailing Team best at an Olympic Games ceremony in Kiel, Germany, in 1972, where they earned their Soling gold medals.

PHOTO: COURTESY *MELGES: THE WIZARD OF ZENDA*

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their boat and practicing. The pair easily won the US Olympic trials and a bronze medal at the Games in Enoshima, Japan.

Bronze was nice, but Melges aspired to win a gold. In 1972, he and Bentsen added E Scow sailor Bill Allen to their team, and they set a goal to race in the Olympics in the Soling class. The US trials were on the Berkeley Circle. The team finished fifth in the first race and broke their mast in the second. It looked bleak, but they roared back with three firsts and two seconds to secure the Olympic berth. At the Games in Kiel, Germany, they faced superstar Paul Elvstrom and a fleet of fast sailors from around the world. The American crew finished 1-2-2-4-1-1 and stood atop the podium.

The film laces Melges' story of first losing in the America's Cup Challenger Trials aboard *Heart of America* in 1986-87, but later joining Bill Koch's America3 campaign for the 1992 Cup. The combination of Melges' "art" and Koch's "science" proved to be a winner. Behind-the-scenes footage shot by Phil Uhl brings the personal side of an America's Cup into sharp focus. Every racing sailor will relate to the emotional rollercoaster ride of competing at a high level.

Honer wrote the script and edited the film with Todd Norris. C.K. Martin provided the music score, which fits nicely with the sailing action and human dramas onshore. The production company is titled Quicklier Film Partners, a tribute to Melges' persistent use of the phrase, "If you want to win, you need to sail more quicklier." I once asked Buddy if quicklier was an actual word, to which he responded, "It is when you are winning." ■

Buddy Melges was 62 years old when he became the primary helmsman for Bill Koch's America3 syndicate, successfully defending the 1992 America's Cup.

PHOTO: COURTESY *MELGES: THE WIZARD OF ZENDA*

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BY KIMBALL LIVINGSTON

John Sangmeister at the helm of the Andrews 68 *Rock n' Roll*, at the start of the 2021 Transpac Race, with twins sons on board.
PHOTO: SHARON GREEN/ ULTIMATESAILING.COM

GENERATING GENERATIONS

Racing Transpac, from Los Angeles to Honolulu, is just as essential for some people as Thanksgiving gatherings. At 2,225 measured miles, a long race with an international component, Transpac is also intensely local. It's a family thing.

THERE are three growing boys in the household of Sarah and John Sangmeister, all of them still in school but big enough and hungry enough for racing Finns. While the youngest, Will, waits his turn, the older two, twins Peter and Jack, are rostered as 2023 Transpac crew for the Andrews 68 *Rock n' Roll*. And it's not their first rodeo.

Then there is boat partner and longtime shipmate Justin Smart, who is also bringing two sons, 20-somethings Cooper and Harrison. For the sons, this is a first big offshore race. Smart, who had great rides in the days of IOR maxis, says: "I didn't get a chance to introduce my boys to sailing. I was too busy racing, and they had other sports, but it's always gnawed at me."

And suddenly, four years ago, there had to be a new boat.

OK, reader, that's a bootleg turn, so hang on. We're going back two Transpacs to make sense of Sangmeister's description of the *Rock n' Roll* program today as "the junkyard dogs of yacht racing."

A few hundred miles into the 2019 Transpac, with the family's much-loved Santa Cruz 70, *OEX*, back in the fold after a time in other hands, the rudder bearing failed. The load it then released onto the rudder shaft leveraged the bottom open, and the boat swallowed the Pacific Ocean. The good news in the bad news turned on the advantages of being on a sea populated with other boats. Not to make light of a sinking, but only half an hour after a mayday call, a rescue began. Soon enough, all nine *OEX* crew were on deck with the skilled crew of *Pyewacket*, owned by Roy Disney (grandnephew of Walt), whose father sailed a record 15 Transpacs and took him on his first at age 16. It's a family thing, remember.

Enough time has passed now to make it a laugh line when Sangmeister relates the radio call with Transpac officer Tom Trujillo in which Trujillo suggested the boat must not have sunk "because we still have you on the transponder." At which point Sangmeister looked at his trusted crewman Ryan Breymaier, who pulled the transponder out of a pocket and deadpanned, "I figured you've lost the boat, but at least you can get your $150 deposit back."

OEX was "much loved" as one of the boats campaigned in a different day by Peter Tong, grandfather of the boys and father of three-Transpac veteran Sarah Tong Sangmeister. Losing that legacy was a lot to absorb, but a lengthy search for a replacement led eventually to the California Maritime Academy, a donated Andrews 68, and a lease-to-own agreement. Like most of the existing West Coast "sleds," the boat had been around for years and gone through a number

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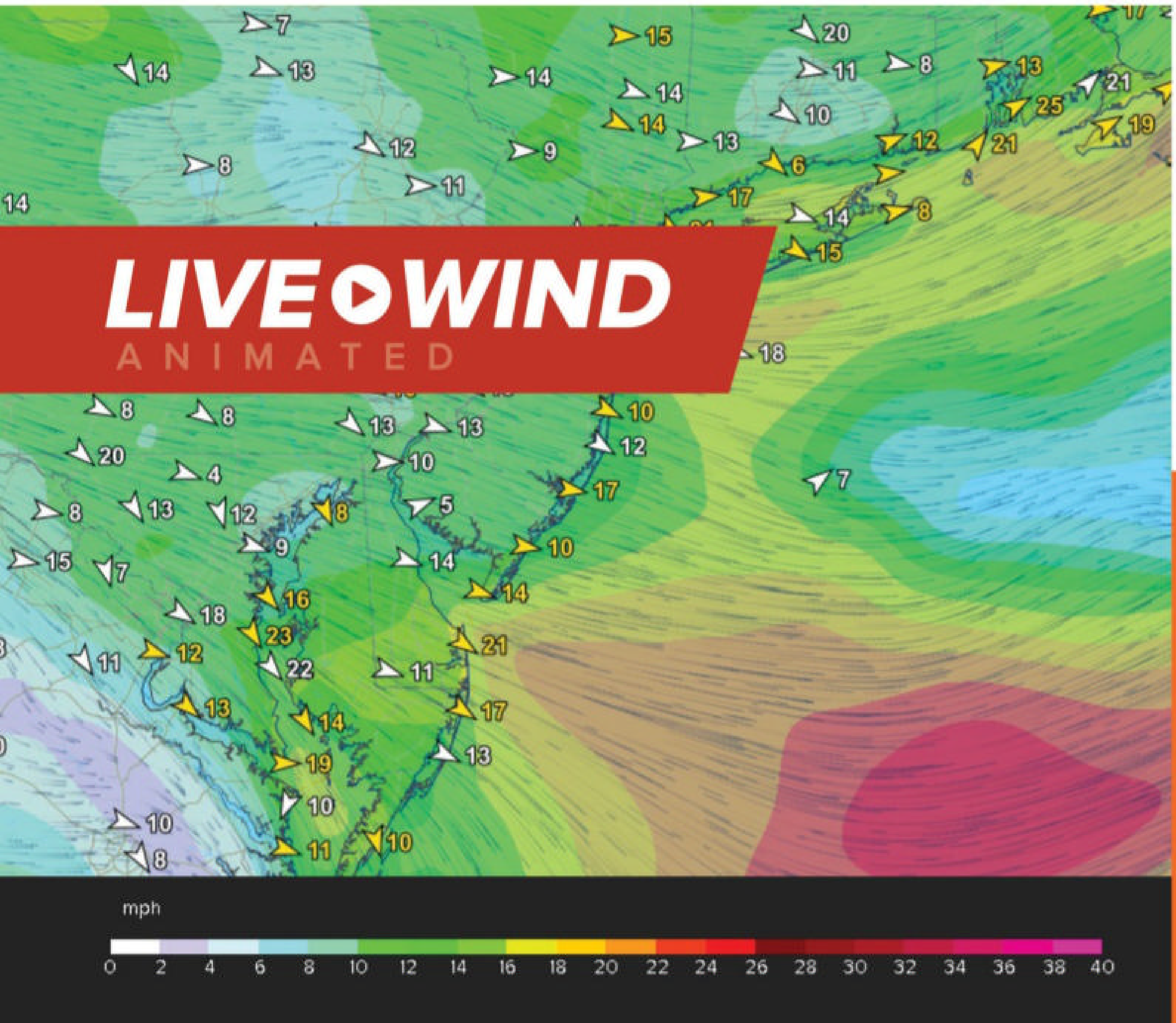
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of names and configurations. The first Andrews 68 was launched in 1991, the first Santa Cruz 70 in 1994. These boats soldier on. This one has since been stripped to the bone, painted inside and out by its crew in a hazmat kit and refitted throughout. Replacement gear includes a pair of Harken 99 winches off a Mod 70 and two Harken 65s off one-time world-speed record holder *Hydroptere*, with a new, thinner (used) keel and a new, thinner (used) rudder. “I’m hoping we can surf sooner and longer,” Sangmeister says. “We’ll be the lightest sled by 300 pounds.”

Add repurposed sails too, but don’t go picturing a cheap-out operation; rather, it is optimized at the lowest possible cost for an inherently expensive undertaking. “I still have three kids to put through college,” says Sangmeister, who operates popular restaurants in Southern California. Boat partner Smart is an executive at a large real estate firm, a job related to his years aboard *Kialoa IV*, a linchpin of the heyday of IOR maxis. For someone with Smart’s offshore experience, it is ironic that 2023 will be his first Transpac. “But we were always on some other ocean with *Kialoa IV*. Transpac has been on my mind because the other races were mostly upwind slogs. They had their appeal, but it’s time for something different.”

As a 17-year-old packed with self-confidence and a lot of sailing under his belt, Smart talked his way onto *Heath’s Condor* for the 1977 Whitbread round-the-world race with Peter Blake as his watch captain. He became the youngest sailor in the history of the race, 18 at the finish. That led later to his role as first mate and trimmer aboard *Kialoa IV*, which is where he met and mentored his future boat partner. Sangmeister recalls: “I was paired with Justin as a grinder, and I told him I wanted to learn how to trim. He would say, ‘Slide down here and look. We’re going to add halyard tension.’ The visible result was dramatic in a big sail.

“Kilroy ran an essentially amateur crew on his *Kialoas*. If you were part of the core crew, you were all friends and generous with each other. The ‘pros’ brought an expertise like rigging or sailmaking that paid their living. It wasn’t like today, where a true pro might worry about getting bumped by the next gun in line.”

Now it’s 2023, 117 years beyond the 1906 inaugural Transpac, and consummate professional Breymaier is back as much more than a “gun,” having missed only one Transpac with Sangmeister since 2013. He admits to wear and tear, traveling back and forth from his home in France to work long hours on *Rock n’ Roll*. He might do better with a different program closer to home. But this is where he wants to be, he says, “as part of this biennial Sangmeister pilgrimage to Hawaii. Justin and John have a tremendous depth of experience. That makes my job—managing the technical aspects—a lot simpler than it might be. And I’ve known John’s boys since they were little. I’ve watched them grow. They’ve been sailing on boats and working on boats all their lives. In the last race, after Jack spent eight days grinding, on the last day I asked him if he wanted to drive. He was casual about it: ‘Yeah, sure.’ And then he was driving just fine. When I asked why he hadn’t spoken up to drive before, he shrugged and said, ‘It’s OK. Maybe next time.’

“That’s why I’m here. For the family. To be part of it. This race is John’s way of measuring time, space and honor.”

Leaving the dock for his first Honolulu crossing in 2017, twin Peter remembers: “I had never raced overnight, so I had things to learn, and I found myself in positions I had never experienced. But I was completely

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comfortable on *OEX* because I had been there so much over the years. Now we have enough short races planned that Cooper and Harrison will have a bit under their belts before we kick off for the West End," the western end of Catalina being the only mark of the course between the starting line and Diamond Head Buoy.

"The other value," Peter says, "is that collectively this crew has dozens and dozens of Transpacs, and we have Ryan who races Ultims, and he's raced around the world. Ryan is the one who always wants to push a little harder."

Dad is meanwhile feeling good about stealing a line from George Griffith that the purpose of the race is to end up better friends than when we started. That happens in 2,300 miles, not in a 600-mile sprint where everyone is grinding it out.

> **The purpose of the race is to end up better friends than when we started. That happens in 2,300 miles, not in a 600-mile sprint where everyone is grinding it out.**

"I love this race," he says. "It attracts the pros but also the people who just want to be out there. It's billed as a downwind race. The reality is that it's 60 percent reaching, and then you run. It's probably light to moderate at the start and rounding Catalina. Once you hit the outer coastal waters, you're close reaching, taking spray, and it's cold, and you're wondering where those golden trade winds are. But the key is to pick a lane and be in the hunt when you pick up the trades."

With the calms of the Pacific high-pressure zone straddling the rhumbline—usually—and the trades circulating clockwise around it, the Transpac game is to sail south of rhumbline as far as you need to for wind. That adds miles while adding speed—but not too far south, adding too many miles. Round-the-world navigators play the same game, skirting pressure zones in the Southern Ocean under a lot more duress. An elite handful of navigators call the Transpac good practice.

In an earlier generation, when Honolulu was smaller and farther away, and mainland visitors were special, the arrival of a Transpac fleet was a show-stopper. The town would turn out. Now not so much. But arriving boats still receive an aloha welcome, aloha meaning much more than hello. Aloha to a true islander is the force that holds the universe together, bringing peace and mercy to human life.

And so, shifting to life at sea, we find Sangmeister observing: "About day five, people are tired and maybe grumpy. You have to pay attention to morale, but 1,000 miles out is an experience you can't have otherwise. Sunsets reflecting off thunderheads. Colors you don't see anywhere else. The horizon, or is that really the horizon? It's a profound view of God's majesty."

And the air gets warmer, and the sea gets bluer until the islands rise ahead, and the wind and whitecaps build for a final crazy rush down the Molokai Channel "to what might be the most spectacular race finish of all."

Come 2025, young Will gets the ride. It's a family thing. ■

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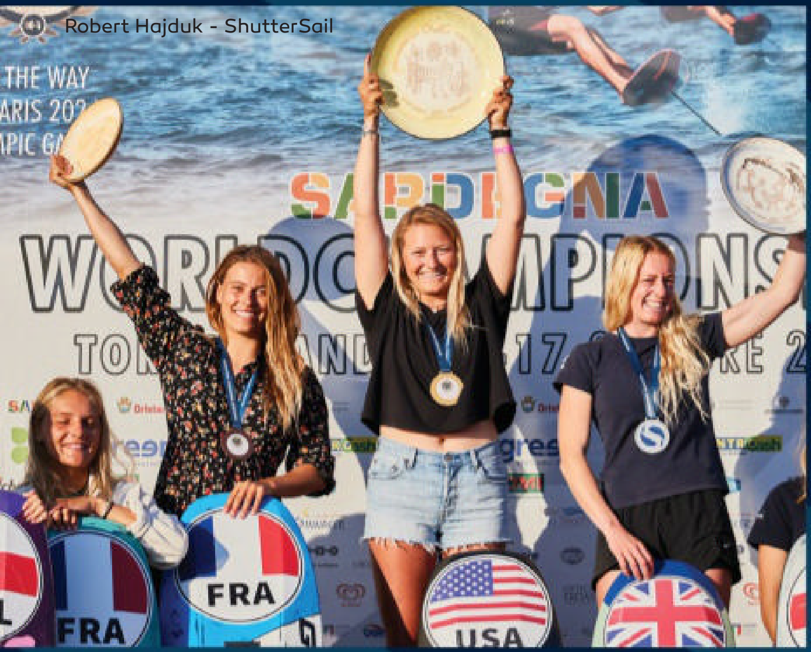
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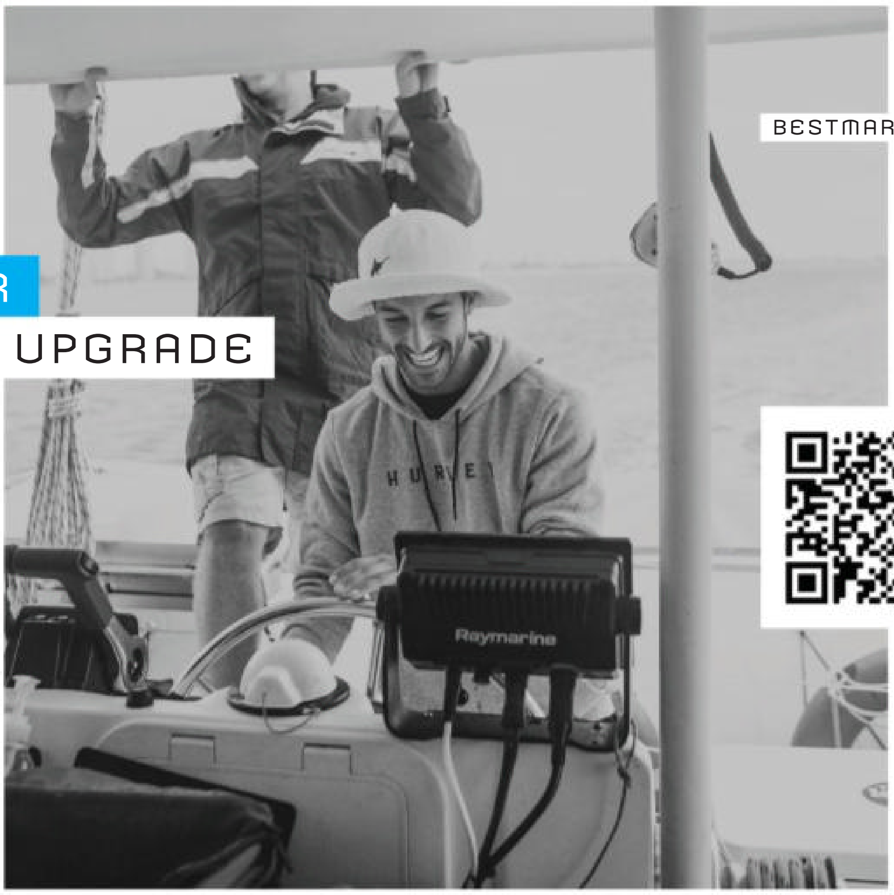

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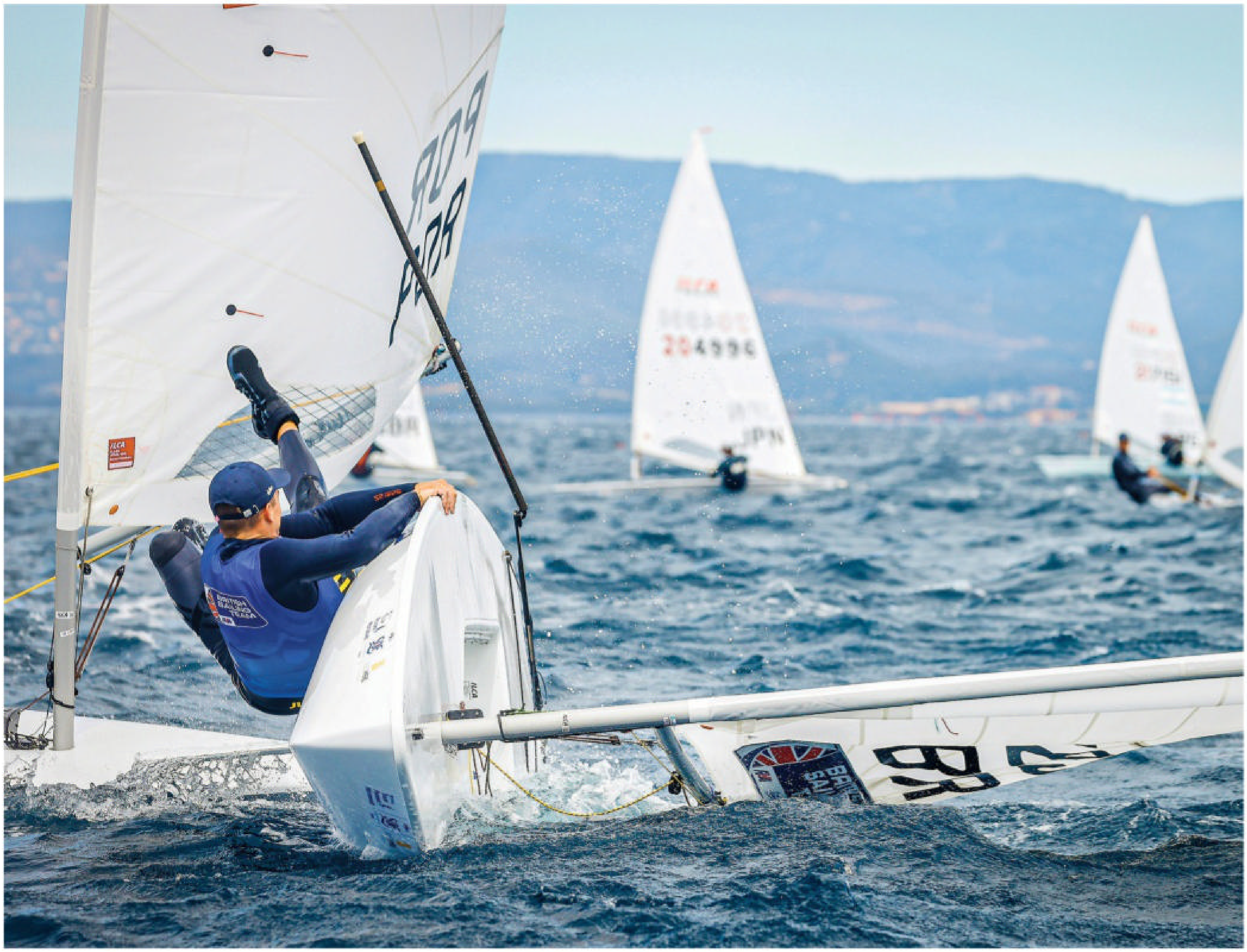

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Mom had a nose for business but Dad was more of an artist. Once they both passed on and I was left with the real estate Mom accumulated, I realized that I got my business sense from my father. I'm definitely Daddy's little girl. I found myself sitting at mom's desk, staring at a little wooden boat my dad had carved and crying. I was so overwhelmed. But then my phone rang. Tim was calling to check in on me. He shared memories of Mom and Dad and also had some ideas for how to make this transition easier: paying bills, upkeep on the properties, managing investments – stuff like that. Reaching out to check on me may seem like **a little thing** but it's made all the difference.

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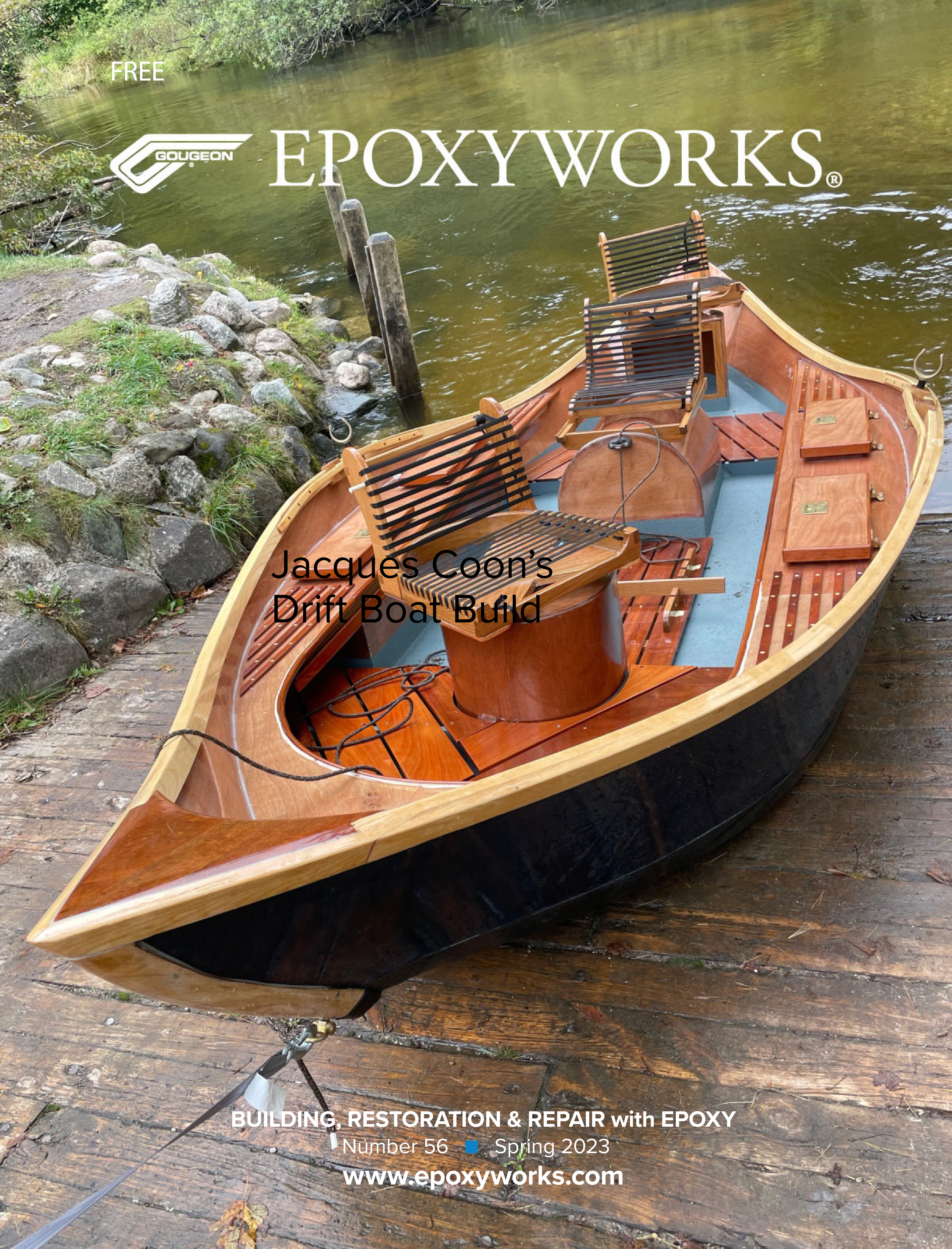

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EPOXYWORKS®

Jacques Coon's Drift Boat Build

BUILDING, RESTORATION & REPAIR with EPOXY

Number 56 ■ Spring 2023

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EPOXYWORKS®

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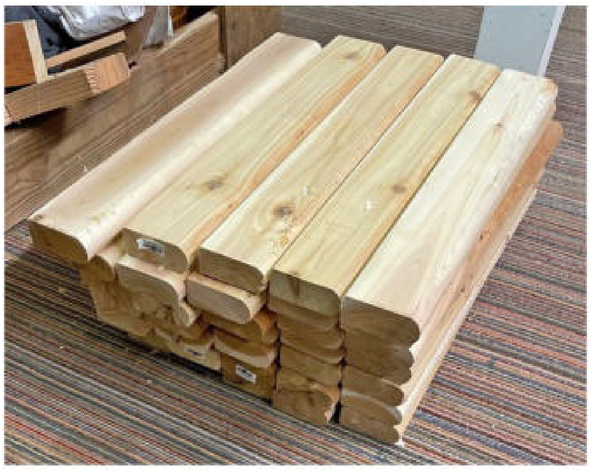
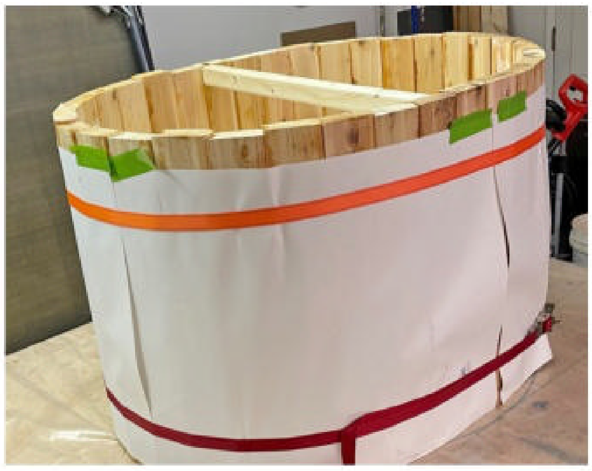
Building a Soaking Tub

By James Thomas

Tongue and groove pine was used for the base of the tub.



Cut 2x4 cedar strakes, with a bead and cove edge, formed the walls of the tub.



Ratchet straps were used to draw the vertical strakes together while the epoxy cured.

After a long time in the planning stage, my son Adam and I began work on a tiny house in 2022. While it was possible to purchase small, modular shower pans and enclosures, small soaking tubs were virtually impossible to find. I've built several small boats using wood and WEST SYSTEM® Epoxy, so it occurred to me that building a small tub might be possible.

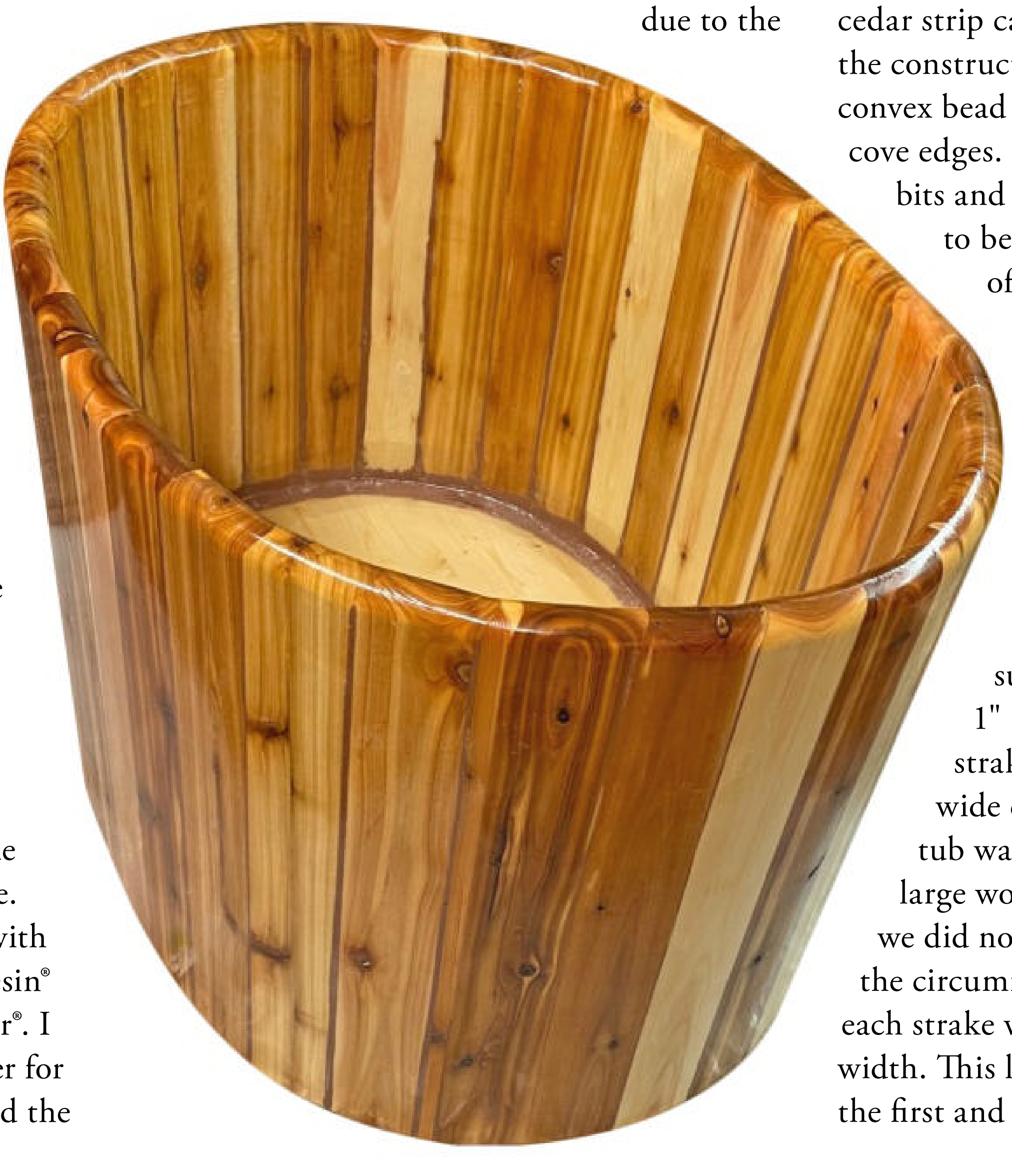
On YouTube® I found videos of several do-it-yourself hot tubs made from 2x4 cedar strakes. Because these were made for mounting outside on a deck, there was no need for adhesives. They relied on steel bands, and the natural swelling of the cedar, to enable the tubs to hold water. Since our tub was going to be inside a tiny home, it needed to be waterproof. The construction would be similar to a boat, however the goal would be to keep the water in rather than out.

The bottom of this tub is made of 2x6 tongue and groove pine. These were epoxied together with WEST SYSTEM 105 Epoxy Resin® with 209 Extra Slow Hardener®. I chose the Extra Slow Hardener for the glue-up of the tub base and the vertical strakes forming the walls of the tub so I had sufficient working time for assembly—first the base and then the walls.

Once the base was cured, I traced the dimensions of the tub interior, plus ½", onto the base. This additional ½" accounts for the loss due to the dado I planned to cut into the vertical strakes later. Then I cut out the tub bottom using a sabre saw.

I fabricated the vertical strakes from cedar 2x4s. The 2x4s were cut into 24" lengths and a bead and cove edge was routed onto the long dimensions of the strakes. Bead and cove is familiar to cedar strip canoe builders—it enables the construction of curved shapes, with convex bead edges, to fit into concave cove edges. Finding appropriate router bits and cutting these edges proved to be the most challenging part of the build.

Once my 36 strakes were cut to length and routed, it was time to cut my dado. The dado would receive the bottom of the tub so that way the strakes would be mostly self-supporting during assembly. 1" in from the end of each strake, I cut a ½" deep by 1 ½" wide dado with the table saw. The tub was then dry assembled on a large worktable. During planning, we did not take the time to calculate the circumference of the tub so that each strake would end up the exact same width. This left us with a gap between the first and last installed vertical



strakes. I custom trimmed and routed an additional strake a little narrower to fit this remaining space.

Because of the sheer number of linear feet of edges to be epoxied, I knew the glue-up was going to be difficult. I surveyed a wide range of adhesives to find a product that would be waterproof and give me enough working time during assembly. I concluded that using WEST SYSTEM 105 Epoxy Resin with 209 Extra Slow Hardener would produce the working characteristics I needed, when combined with 404 High-Density Filler and 406 Colloidal Sillica Fillers for my adhesive mix.

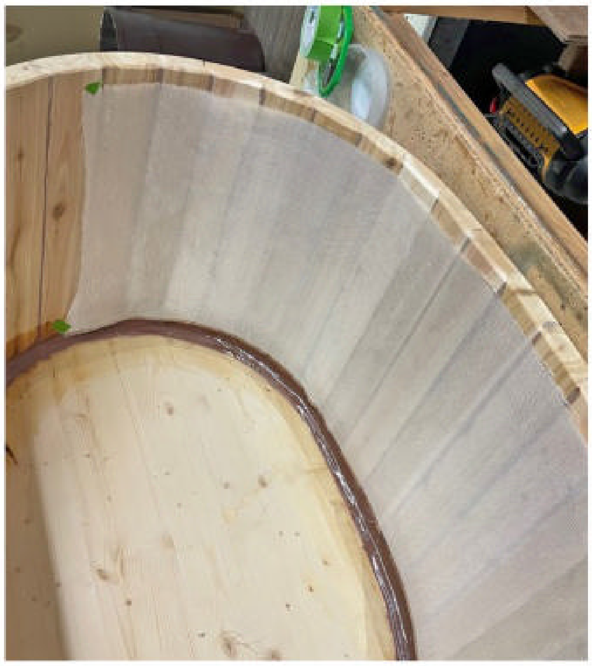
For the glue-up, I started by wetting out all of the edges to be epoxied with unthickened 105/209. I then applied my adhesive mix to the concave edges and the dado slot. Standing the strakes on end, the tub began to take shape one strake at a time. At this point the strakes were loosely assembled, attached only on the bottom. I wrapped painter's paper around the tub, then fitted two rachet straps around the tub to draw the strakes together.

The final steps to finishing the tub were quite similar to building a small boat. I added fillets to reinforce the joints, laid fiberglass tape over the fillets, applied 4 oz. fiberglass to the interior of the tub, rolled fill coats of epoxy over the fiberglass, and coated the entire tub with 105 Epoxy Resin and 207 Special Clear Hardener®.

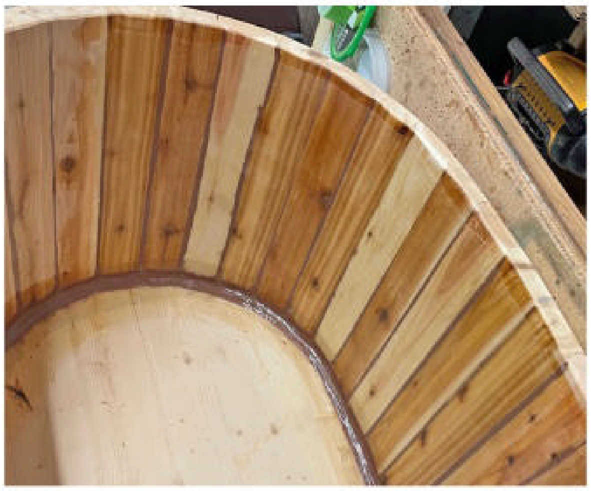
Once the drain was installed in the tiny house, its location was marked on the tub bottom. I used a router with a top bearing, guided by templates, to cut the countersink for the drain fitting. I used a hole saw to drill the 1 ½" hole through the tub bottom. The drain holes were then coated with epoxy and allowed to cure before installing the drain fittings using conventional gaskets and plumber's putty.

As you can tell by his smile in the picture, my son is thrilled with his custom, tiny house tub. This adds a lot of character to the house, and is built sturdy enough to be enjoyed for years to come.

Once the epoxy cured, the tub needed to be sanded and the vertical strakes trimmed.



Close-up of dry-fitting the fiberglass lining. Fillets were added to reinforce the joints.



Fiberglass tape was applied to the fillet around the base and 4 oz fiberglass fabric to the interior walls.

The entire tub was clear coated with 105/207.

Adam enjoying the finished custom tub.

Calculating Laminate Thickness

By Rachael Geerts – GBI Composite Materials Engineer

Have you ever wondered how laminate thickness can be determined without breaking out the epoxy and reinforcement fabric? The answer is simple—use math. While some of you may have just lost interest because you think math is too difficult, I can assure you that this math requires nothing more than some basic multiplication, addition, and division. Let's get to it.

Here is the equation we'll use to calculate the average thickness for a single layer of laminate:

$$t_L = \frac{W_F}{\rho_F} + \frac{\left(\frac{W_F}{X_F} x\, X_R\right)}{\rho_R}$$

In this equation:

- t_L represents the total composite laminate thickness.
- W_F represents the aerial weight of the woven or knit reinforcement fabric you are using in your composite laminate.
- ρ_F represents the density of the reinforcement fibers.
- ρ_R represents the density of the resin system you are using. In this instance, the resin system is West System Epoxy.
- X_F represents the fiber weight fraction, which is determined by the process you are using to create your laminate.
- X_R represents the resin weight fraction. Like the fiber weight fraction, this will be determined by your processing technique and can be calculated as $X_R = 1 - X_F$.

Now that we know what our variables represent, we need to determine their value.

Reinforcement Aerial Weight (W_F)

The aerial weight is given by the fabric supplier, but it's also what you typically call the woven fabric you buy. Ever wonder why fiberglass was called 10 oz. or 17 oz. or maybe why carbon might be called 200 gsm? These are the aerial weights of the fabrics (exact aerial weight is typically given on the spec sheet). 10 oz. is referring to 10 oz./yd^2. The same is true for 17 oz. Now, weights like 200 gsm carbon may confuse those of us in the US a little, but gsm stands for grams per square meter. This is a common unit of measure for carbon fiber.

This brings up a good point—check your units! For these equations to work properly you need to make sure you are using the same units—inches to inches or mm to mm, etc. I could go into great detail here about how to convert between different units, but with all the resources available today, you hardly need to do the conversions by hand (although you can if you like math that much!) There are plenty of apps or websites that will do these conversions for you in a matter of seconds, so I would recommend using one of them (or checking your work with one of them).

Fabric and Epoxy Density (ρ_F and ρ_R)

While you can find the densities of different fiber reinforcement types in various reference materials, we typically use the values given in this table.

Fiber type	Average density in oz/in^3	Average density in g/cm^3
Fiberglass	1.47	2.55
Carbon Fiber	1.04	1.80

The average density of the West System® 105/20x is about 0.68 oz/in^3 or 1.18 g/cm^3. Specific densities can be found on our technical datasheets on our website.

Weight Fraction (X_F and X_R)

Through much research and experience, the composites industry has agreed that the processing technique you use impacts the weight ratio of each component. This means that, if you hand lay up your laminate, the weight fraction (X) values will be different than if you vacuum bag your laminate. This second table contains the X value ranges that are typically accepted in the composites industry. Since the only components of your reinforced laminate are the fibers and the epoxy, $X_F + X_R$ should always equal one.

Processing Technique	X_F **Fiber Weight Fraction**	X_R **Resin Weight Fraction**
Hand Lamination	0.45-0.55	0.45-0.55
Vacuum Bagging	0.55-0.7	0.3-0.45

The hand lamination technique is suitable for a wide range of applications, however there may be certain times where you need to optimize your laminate for higher performance. Since the laminate fibers carry the majority of the load, it is often best to increase X_F and decrease X_R to maximize the composite's strength.

The most common way to increase X_F when using epoxy is to vacuum bag your laminate. This means that, after you have thoroughly wet out your reinforcement fabric, you would follow the directions outlined in our *Vacuum Bagging Techniques* manual. For a flat laminate, you would want to apply a vacuum pressure of 5-12" of Hg (inches of mercury). For a more complex shape, you would want to apply 12-25" of Hg to get an even vacuum pressure across the entire laminate. This vacuum pressure helps remove entrapped air and excess epoxy, consolidating the laminate. Again, this is a great way to optimize your laminate, however, it may not be practical or needed for every project. Make sure to consider the full scope of the project before determining which processing method you are going to use.

The Formula in Action

Let's put our new knowledge to the test. We will calculate the thickness for a fiberglass, hand layup panel made with one layer of 10 oz. fabric and 105 Epoxy Resin® with 205 Fast Hardener®.

W_F - If we use one square yard of 10 oz./yd^2 fiberglass then W_F = 10 oz./yd^2. We'll convert this to 0.0077 oz/in^2 which will help with units later.

X_R and X_F - We can use 0.5 for our X_R and X_F (right in the middle of the ranges) since our panel will be made via hand lamination. ***Note:*** *This amount of epoxy will allow you to thoroughly wet out the fiberglass by hand.*

ρ_F - From the density table, we know the average density of fiberglass is 1.47 oz./in^3.

ρ_R - We also know that the density of 105/205 is 0.68 oz./in^3.

If we start putting all of the known values into the equation, we get:

$$t_L = \frac{W_F}{\rho_F} + \frac{\frac{W_F}{X_F}\ x\ X_R}{\rho_R}$$

$$t_L = \frac{0.0077\ oz./in^2}{1.47\ oz./in^3} + \frac{\frac{0.0077\ oz./in^2}{0.5}\ x\ 0.5}{0.68\ oz./in^3}$$

$$t = 0.0052\ in + 0.011\ in$$

$$t = 0.016\ in$$

(Using 2 significant figures)

Glass Fabrics

Woven E-glass fabrics are ideal for building composite laminates and repairing fiberglass structures. May also be used to provide an abrasion-resistant covering for wooden structures. When wet-out, the 4 oz. and 6 oz. fabrics become transparent, allowing a clear, natural wood finish. Perfect for stripper canoes. May be painted or varnished.
(740, 742, 745)

Glass Tape

Versatile WEST SYSTEM 9 oz. woven E-glass fabric tapes, with bound edges, are ideal for reinforcing chines, hull/deck corners and similar structural applications. When bonded with WEST SYSTEM Epoxy, they provide additional tensile strength to resist hairline crack development and abrasion.
(729, 731, 732, 733)

Biaxial Fabric

17 oz. non-woven E-glass fabric. Two layers, ±45° fiber orientation. For composites, repair and reinforcing. Achieves high fiber-to-resin ratio with hand wet-out.
(737)

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A Few Last Thoughts

While the laminate thickness equation may look a little intimidating at first, you now know exactly how to fill it in and solve it. This is a great tool to help you in calculating your laminate thickness, but keep in mind that this equation only gives you an average single-layer thickness. The average takes into account the high spots and low spots in the fabric from the weave. If you were to take some calipers and measure the thickness of a panel made with a single layer of fiberglass, you would likely get a slightly higher number than the calculated thickness because the calipers would rest on the high spots of the fabric.

Remember to double-check your units! They are slippery little fellas and can sometimes get away from you. Make sure to always keep them in check (you should never end up with a single-layer thickness even close to an inch or more with a standard woven or knit reinforcement fabric).

I hope this makes you feel a little more confident heading into your next composite application. If you have any additional questions feel free to contact our technical staff online or over the phone at 1-866-937-8797.

Disclaimers

We do not engineer laminates and cannot recommend a final laminate thickness for builds or repairs. During repairs, we generally recommend replacing the original laminate thickness to maintain or exceed the strength of the original laminate that was designed.

While this equation is accurate, it is still based on some average and nominal values. We do not guarantee that your laminate will be the exact thickness as calculated using this equation.

Short Cut

If you're steadfast in your aversion to math, I've got a shortcut for you. This chart has the approximate single layer thickness for all of our WEST SYSTEM fiberglass for a hand lay-up laminate.

Product	Fabric Weight	Single Layer Thickness*
740	4 oz.	.006" - .008"
742	6 oz.	.009" - .011"
702	11 oz.	.015" - .018"
729	9 oz.	.013" - .017"
731	9 oz.	.013" - .017"
732	9 oz.	.013" - .017"
733	9 oz.	.013" - .017"
745	10 oz.	.014" - .019"
727	17 oz.	.025" - .032"
737	17 oz.	.025" - .032"
738	23.8 oz.	.039" - .053"

Extract from the WEST SYSTEM *User Manual & Product Guide*, Reinforcing Materials.

iaxial Fabric
ith Mat

oz. non-woven E-glass
ric. Two layers, ±45° fiber
entation. The same as 737
ric with a .75 oz./sq. ft. mat
king. Approximately 23.8
/sq. yd. total fabric weight.
8)

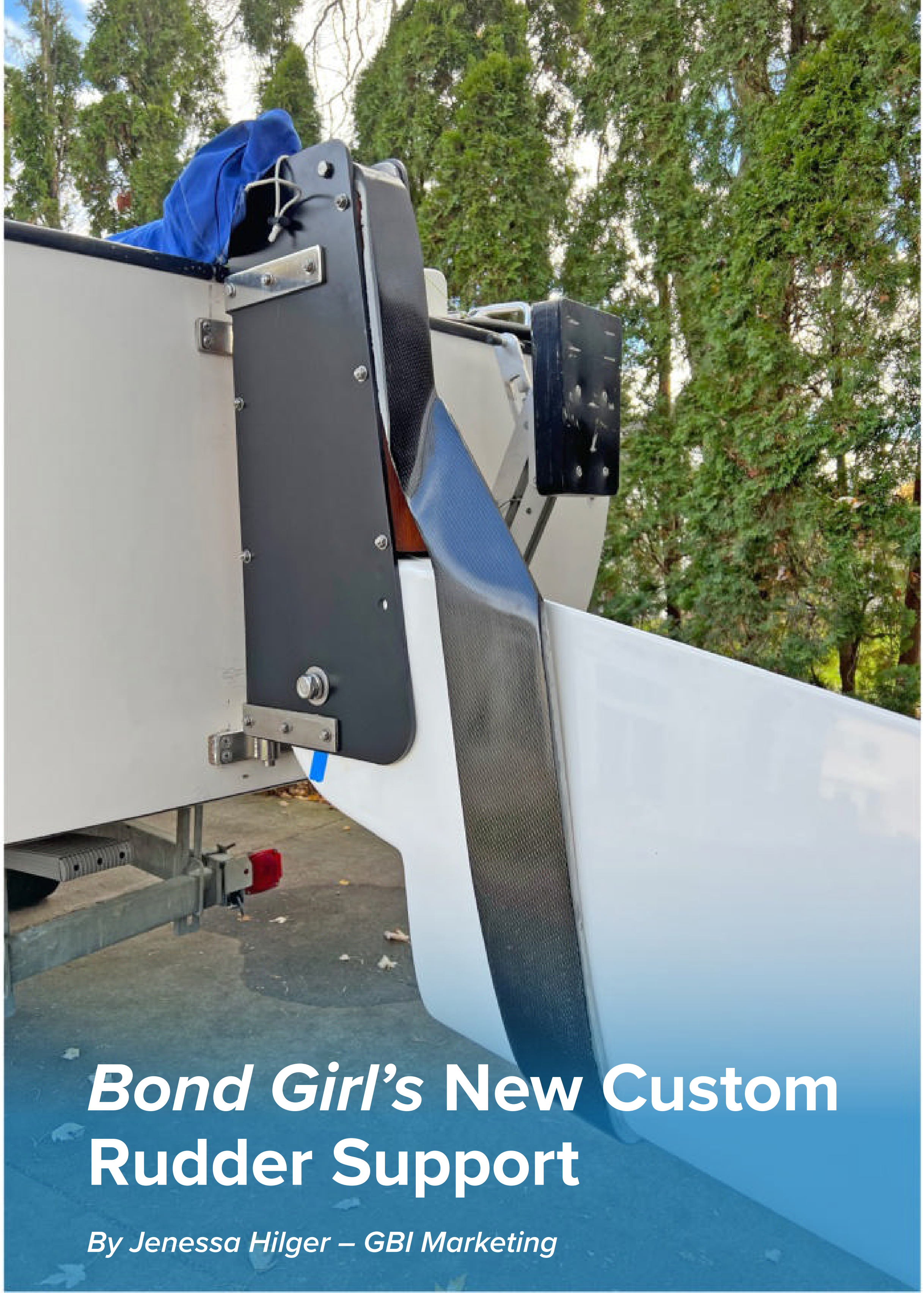
Biaxial Tape

17 oz. non-woven E-glass fabric. Two layers at a ±45° fiber orientation are held together by a light stitching. Flat, non-crimped fibers yield reduced print-through and higher stiffness than woven fabrics. Ideal for repairs, tabbing and reinforcing.

(727)

Have a question about Calculating Laminate Thickness?

Scan the QR Code to contact our **Technical Services Team**.



Bond Girl's New Custom Rudder Support

By Jenessa Hilger – GBI Marketing

Test fit of Bond Girl's new rudder support.

The weekend before our wedding, my husband and I bought our S2 7.9 meter sailboat. She was exactly what we were looking for, a trailerable racer/cruiser that was a diamond in the rough. We felt fate had drawn us to her. She was hull number 7, 007 to be exact, and I had about six months under my belt working at Gougeon Brothers, so the boat basically named herself: *Bond Girl.* Over the past nine years, we've made many improvements, the latest of which was building a custom fiberglass and carbon fiber rudder support, or as I nicknamed it, a rudder hook.

Because of the length of the rudder, and how low these boats sit on the trailer, it's important to support the rudder kicked up for launching and retrieving. When we purchased the boat, it came with a fabricated stainless steel rod that had hooks on both ends. One end inserted into a lifting eye in the trailing edge of the rudder, and the other would hook onto the vertical wood spacer on the back of the rudder box. The lifting eye in the rudder was susceptible to stress cracking. We tried a few different repairs to reinforce the area, but were never truly satisfied with the results.

Last year, while out for a leisurely afternoon sail, spinnaker flying, with grandparents and kids on board, *Bond Girl's* 40-year-old rudder finally had enough. We surveyed the carnage of our poor rudder. It looked like a dead fish floating on the top of the water. The rudder broke at the very top of the blade, right through that problematic liftingeye. We hauled it on board and used the outboard to motor back to the dock.

The immediate problem was that in four days we were scheduled to compete at the Red Fox Regatta in Charlevoix, Michigan. This is our favorite race with the boat, and we didn't want to let a "little" thing like a rudder keep us from attending. Luckily, a friend loaned us a spare rudder to use until our new one arrived.

The new rudder we ordered through the class arrived mid-winter. While unboxing it, we discovered it had not been pre-drilled for the eye. We seized the opportunity to eliminate the weakness of our previous rudder. The challenge was devising a new fixture to support the rudder securely, with no mechanical attachment point through the rudder itself.

We decided on a concept that would hook like a "J" around the leading edge of the rudder, then run vertically up to the wood spacer on the back of the rudder box, and take a 90° turn at the top of the wood to run under the tiller bolt and between the cheek plates. This device would be locked into place with a vertical pin running perpendicular to the tiller bolt. To prevent wear, on the rudder we wanted to use ½" thick roll foam to pad any part of the fixture that would touch the rudder.

To create this highly custom design, we needed to use the borrowed rudder and our rudder box as a mold to create the perfect fit. We positioned the rudder at the correct angle for pulling the boat out of the water. Then we laid out pieces of our foam and fiberglass to get a feel for where we wanted the hook to be. We also determined where we were going to support and clamp everything once it was wet out with epoxy. The transition between the rudder and the rudder box would need additional support. We determined sandwiching that area with some scraps of foam left over from padding would be sufficient support. Satisfied with our plan, it was time to begin the epoxy work. We masked just about every inch of the rudder to be certain no stray epoxy accidentally got where it shouldn't be.

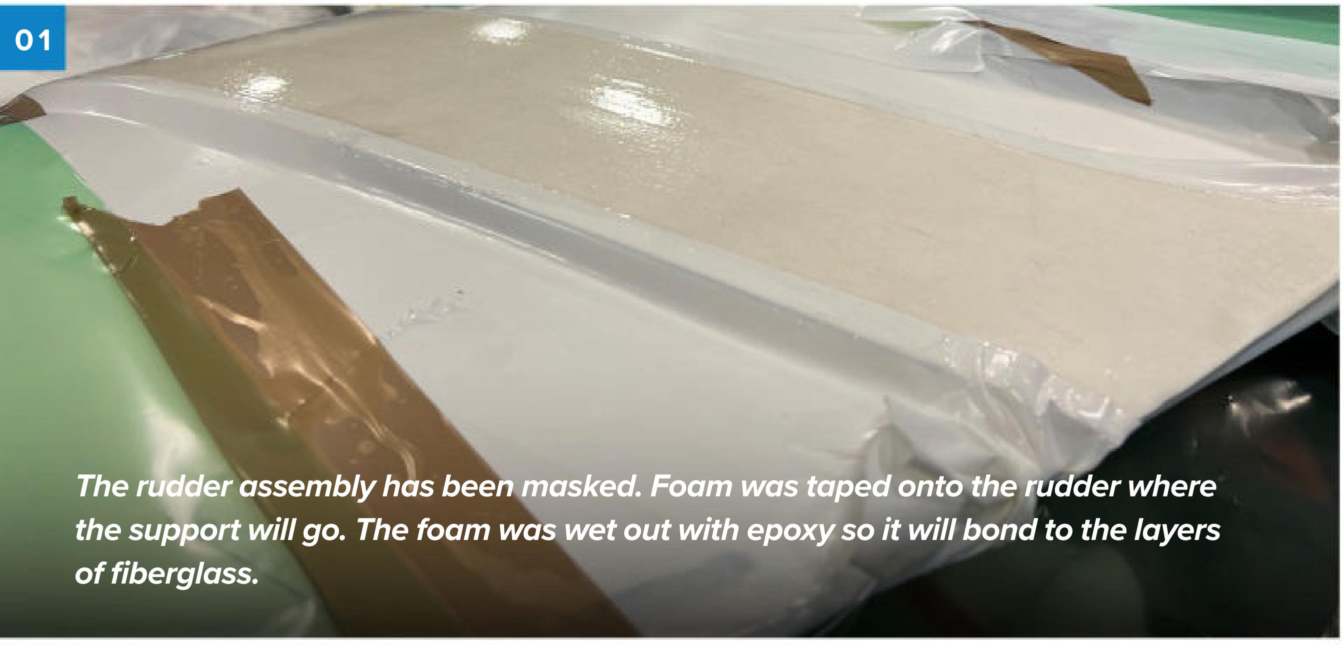
We cut the glass and foam to size, intentionally leaving about an inch margin on all sides to be trimmed off later. Oversizing the materials ensured the full laminate thickness continued all the way to the edge of the final part for maximum strength. The first layer applied to our masked rudder was the ½" foam. The foam was springy and wanted to lift off the rudder, so we taped the edges down to get a tight fit (figure 1). We brushed a light layer of WEST SYSTEM® 105 Epoxy Resin® and 206 Slow Hardener® on the top of the foam. Applying the epoxy directly to the foam did two things: Created better adhesion to the fiberglass, and it kept the foam from drawing epoxy out of the laminate, which could make the finished laminate weaker.

Next, we needed to wet out the 737 Biaxial Fiberglass Tape (17 oz.) on a flat surface, using more 105/206 (figure 2). We wanted to be sure each layer was fully saturated, which is much easier to do on a flat table than on the underside of the rudder. Why use fiberglass tape you ask? Even though we needed a broader surface area where the hook would cradle the rudder, as we transitioned up to the rudder box, the glass would need to taper down to the exact width of our fiberglass tape. The strips of tape would allow us to "weave" them together, tapering down to the single width dimension we needed. This method of weaving would also help evenly transfer the load down the length of the fibers, giving a stronger result than simply cutting away the unnecessary portion. (It's also less wasteful).

In total, we were going to need 6 layers of the tape, two strips wide (a total of 12 lengths). We wet out the first two strips of fiberglass tape side by side, followed by all the subsequent layers stacked directly on top of those. Then we folded all but one length of fiberglass back on itself, about ⅔ of the way down the length of the fiberglass. Here we began to "weave" the layers together.

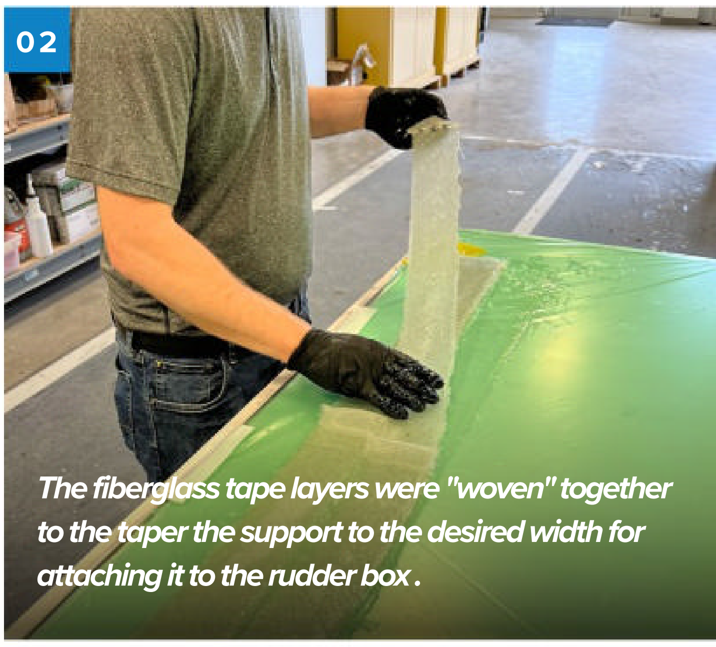
With the first strip left in its original position, we took the strip that was wet out next to it and crossed over the top of the first so that the two ends were on top of one another. Then we moved to the next layer. Again, the first strip was laid back down straight and the second crossed over with the end on top of the others. This continued for the remaining layers. Then we trimmed away some of the excess carbon fiber so it roughly resembled the shape of the fiberglass (figure 3). We wet this out with our epoxy too.

01



The rudder assembly has been masked. Foam was taped onto the rudder where the support will go. The foam was wet out with epoxy so it will bond to the layers of fiberglass.

02

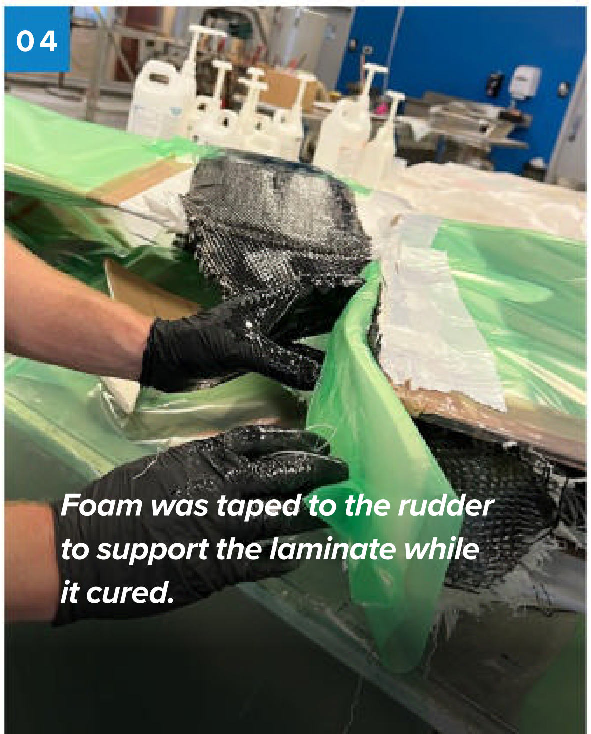


The fiberglass tape layers were "woven" together to the taper the support to the desired width for attaching it to the rudder box .

03

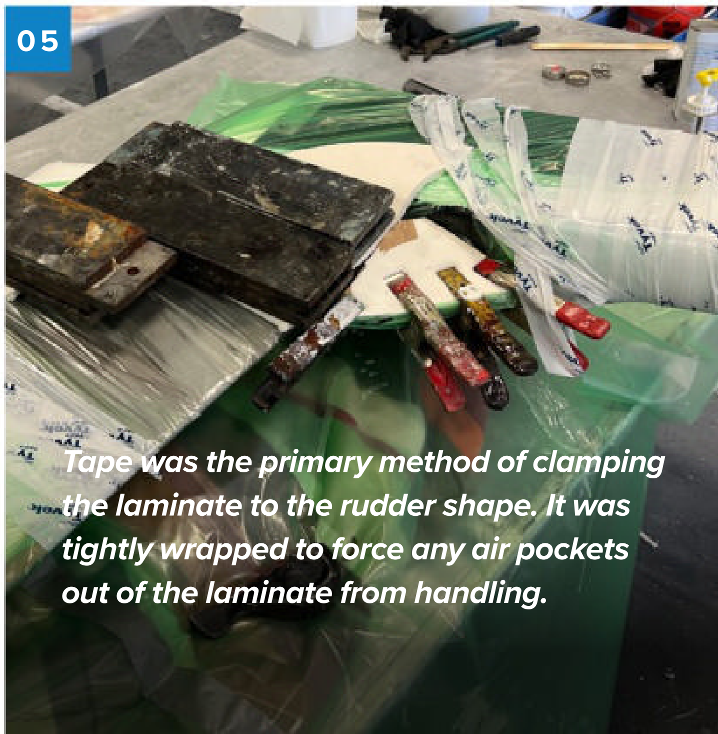
A layer of carbon fiber was applied over top of the fiberglass tape for cosmetic purposes.

04



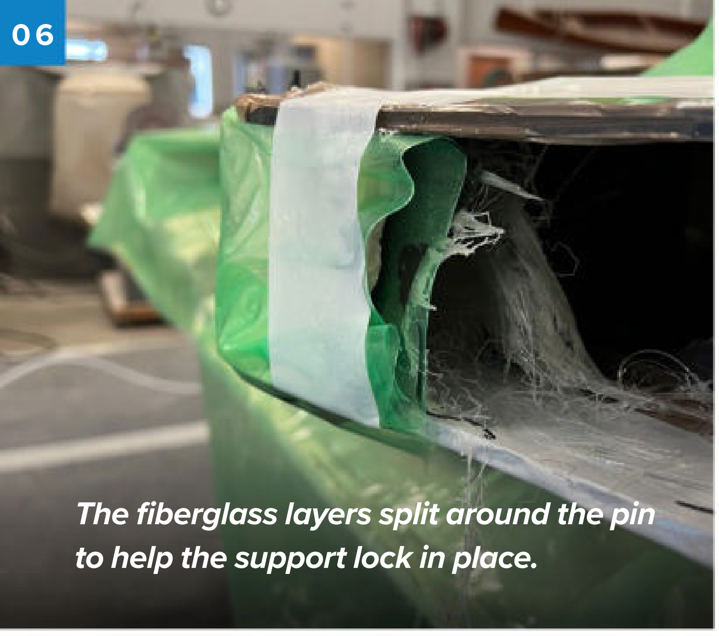
Foam was taped to the rudder to support the laminate while it cured.

05



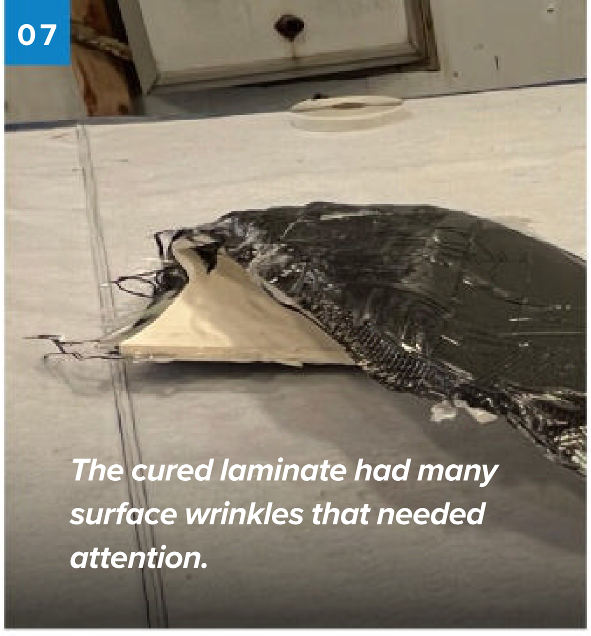
Tape was the primary method of clamping the laminate to the rudder shape. It was tightly wrapped to force any air pockets out of the laminate from handling.

06



The fiberglass layers split around the pin to help the support lock in place.

07



The cured laminate had many surface wrinkles that needed attention.

08

Black tinted 105/206, with 406, was spread on the surface to fill in some of the wrinkles.

09

The 105/206 filler layer was sanded smooth.

10

A fresh layer of carbon was bonded to the surface..

Now it was time to transfer all those heavy, saturated layers to the rudder. Carrying the laminate conjured the feeling of holding a python. Even the texture of the coarse weave carbon was reminiscent of scales to my gloved fingers. We laid the double width section of the laminate on the rudder blade, the single width section on the wood of the rudder box, and the transition section was suspended in between.

The saturated laminate was heavier than we had expected, creating more difficulties positioning the laminate than we originally anticipated. We anchored the single width section to the rudder box first. We laid a piece of release film on top of the laminate. Then, using tape, we encircled the box and laminate, compressing the laminate tightly. Securing this point allowed us to keep tension on the laminate. This was important because the transition from the box to the rudder did not have a ridged support, so it was sagging more than expected under the weight of the wet out laminate. Under firm tension, we wrapped the double-width end of the laminate around the leading edge of the rudder. We used our tape wrapping method again to evenly clamp the laminate to the rudder.

Despite our best efforts to keep the laminate taut, the transition section was still sagging more than we liked. For support, we used scraps of the foam that were covered in mold release tape. We sandwiched the laminate with these, compressed by a couple of spring clamps. The foam helped smooth out the arc of the laminate to a gentler curve without creating hard transition points. Plus, the foam helped cushion and distribute the force applied by the spring clamps holding it together (figure 5).

At this point, the epoxy was kicking off, so we needed to wrap things up. The last section to position was the bend at the tiller pin. The span between the wood of the rudder box and the pin was not wide enough to feed all 13 layers of laminate underneath it. Instead, we split the laminate so 7 layers went below the pin and 6 went above (figure 6). Our reasoning was, if this proved to be a weak area when the epoxy cured, we could easily add reinforcing layers once we separated the part from the rudder. That section would be more accessible. Trying to fit our hands into the small cavity was proving difficult, and we were running out of time. The epoxy was curing.

It was back to the tape again. We continued securing any areas we thought may be too proud or had the possibility of sagging. We also added a few weights for good measure.

Once the part was cured and demolded, we inspected our work. Not terrible, but definitely room for improvement. The pressure from the tape left some uneven banding and many wrinkles in the part's surface. Not great from a cosmetic standpoint, however, the laminate was as strong as we had hoped for (figure 7).

We trimmed the extra material from the edges and did a quick test fit. It functioned better than we had guessed. Because we made the mid-epoxying decision to split the layers around the tiller bolt, the excess epoxy squeezed out on the inboard side of the bolt. This left a little bump on the top and bottom between the laminate split. The resulting effect was that the hook snapped into place around the tiller bolt.

Now it was time to do something about those cosmetics. Our approach was to create a filler layer to even out some of the wrinkles so we minimized grinding into the laminate fibers, and weakening the part. We used 105/206 thickened with 406 Colloidal Silica Filler to it to reach the consistency we were looking for. We also added some 502 Black Pigment to help this fill layer blend in with the carbon fiber (figure 8). Once this frosting layer had cured, we came back with some 80-grit to prep the surface (figure 9).

One more layer of carbon fiber was applied to give us the beautiful aesthetics we were looking for (the added strength wouldn't hurt either) (figure 10). The part underwent one final trim to clean up the edges, and our pièce de résistance was complete.

If I were to repeat this project, I would have paid closer attention to the tape's tension while applying it. We were inconsistent with our tension when we were problem solving on the fly, so some wraps were pulled more tightly than others. This caused the release film that was laid on top of the laminate to wrinkle, imprinting the part, and resulting in more finish work. Also, we were running out of tape left and right, so we were grabbing any roll that was handy. Using this hodge podge assortment of tapes, each one could have applied different pressure depending on their width, adhesive, and the material's stretchiness. I definitely should have been sure to have all the materials I needed at hand before starting to mix the epoxy.

Having gone through the process, I now know that I should have applied the carbon fiber layer after the fiberglass had cured. If I had been more realistic (honest) with myself that there would be imperfections after the initial layup, then I would have planned on applying a thickened coat to address the surface imperfections before applying the highly visible outermost layer.

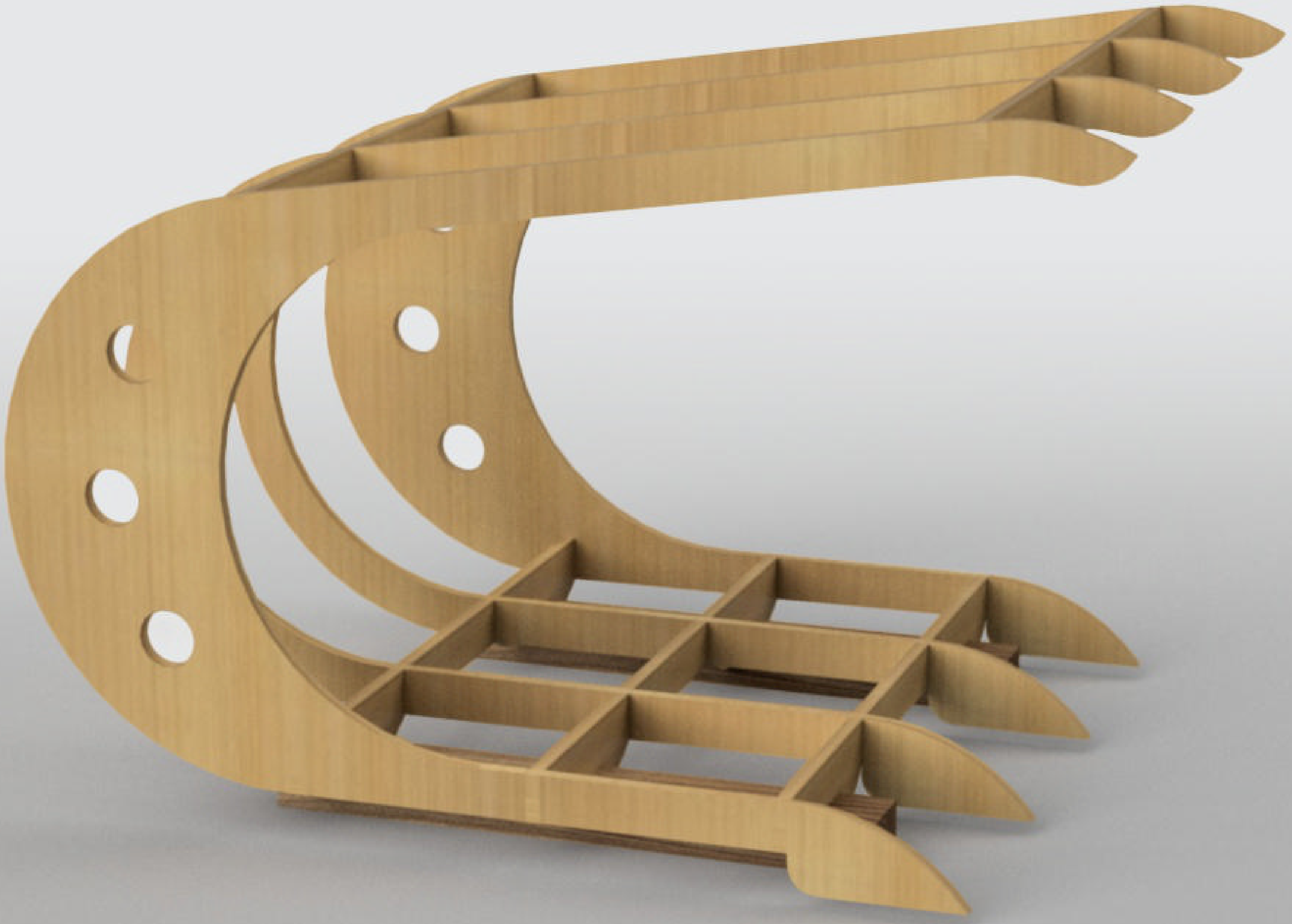
The resulting rudder hook looks pretty darn racy for the old girl, but with a name like *Bond Girl*, she deserves nothing less than beautiful epoxy work. I can't wait to do some durability and ease of use testing over the summer as we compete in our regattas. That will be the true gauge for our success.

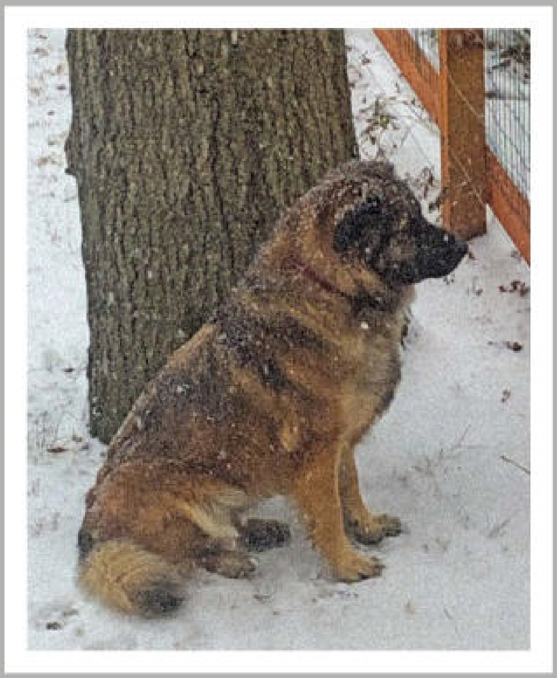
Bond Girl, sailing in the weekend race series on the Saginaw Bay.

Scan the QR Code to download the ***West System Fiberglass Boat Repair & Maintenance Manual*** and learn how to repair cracks, holes, damaged skins, cores, keels, rudders, and gelcoat, as well as how to install hardware and teak veneer decks.

Babka's Dog Haus

By James Powers





Babka on duty, surveying the premises.

The day after Thanksgiving 2020, we adopted a 60 lb. dog from a shelter in Danbury, CT. She came with a plastic bag of turkey scraps and not a lot of info.

I thought we might have accidentally got a Leonberger pup, but a DNA test showed we had a mutt with no dominant breed. My wife and I named her Babka because of her heavy double coat of black and brown. In hindsight, we were lucky. Babka is relaxed, rambunctious and playful. She is good with children. Perhaps she had come from a family.

Oddly, the shelter had given us strict warnings against leaving Babka outside in the cold. This was a conundrum, as Babka seemed quite comfortable napping in snowdrifts, delicately slurping flakes off the seat of our picnic bench, and lumbering about the premise disguised as an abominable snowman. Dragging her inside in the evenings entailed bribes in the form of choice cuts of skirt steak and sautéed shrimp (with the shell on).

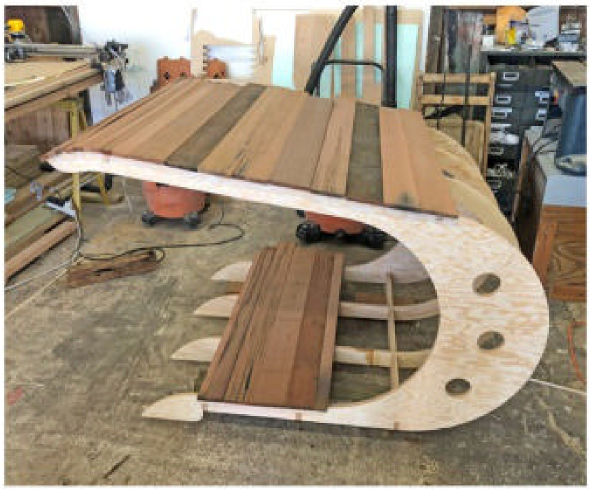
Soon enough, Babka made it clear that she was OK with the fluffy dry snow, but the wet wintry mix was simply unacceptable—especially, if she was going to focus on her career. Her job had thankfully evolved from displacing all our shoes, scarves, and mittens into the yard every morning to guarding the premises against deliveries and other scurrilous interlopers lurching out of suspicious dark vehicles. After negotiation, we agreed that her working hours were 8am - 6pm, with the possiblity of overtime shifts on weekdays (paid under the table with skirt steak). We also agreed that she urgently needed a sturdy handsome Dog Haus commensurate with her commitment to our health and safety.

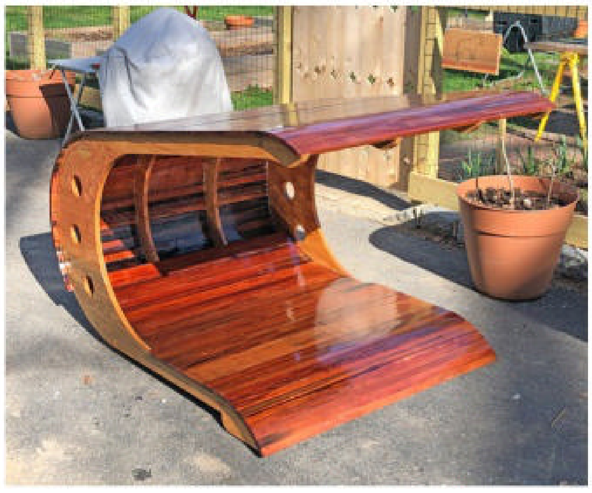
I threw together a makeshift shelter and hit the drawing board to design the real thing.

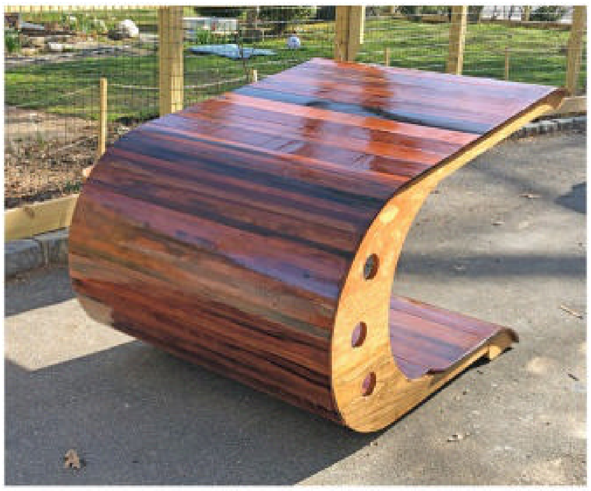
In my initial research, I was appalled at the abundance of dog houses designed as shrunken human homes with ill-conceived blind spots and misplaced suburban ornamentation. The dominant style did not adhere to the fundamentals of modernist canine architecture, ie. "form follows function". The physical and emotional necessities of working dogs, such as Babka, was being stifled by baroque pre-fabs. Now this was a housing crisis!

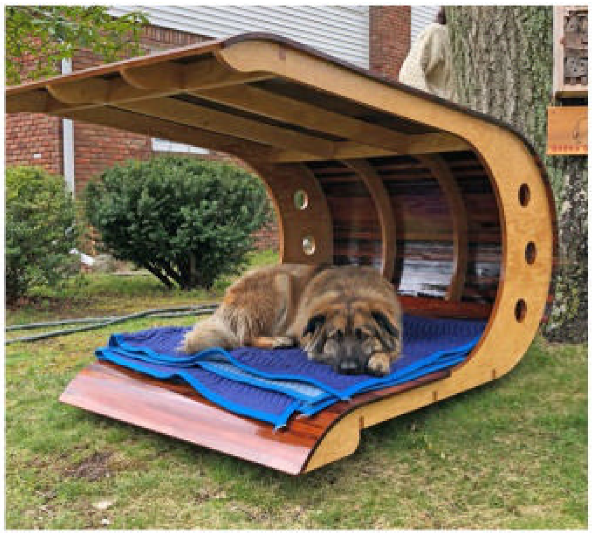
In desperation, I turned to my bookshelves, and revisited a standby—*Soviet Bus Stops* by Christopher Herwig. As a young graduate student in the early 2000s, Herwig trekked the former Soviet Union documenting the remnants of a mostly defunct continental bus network. His research goes further than the brutalist Communist concrete structures we would expect and brings to light some incredibly unique designs from obscure rural areas in the Soviet satellite states. There was an unusual lack of bureaucratic supervision given to the craftsmen and architects involved in this bus stop project in the later era of Brezhnev. What results is a diverse array of buildings that mirror the cultural and geographic diversity that Russia had struggled to mask for decades.

With some of these cool forms mulling around in the back of my mind, I started laying something out in a CAD program. Returning to observe the makeshift shelter through the course of a couple snowstorms, it was apparent that a considerable overhang was needed to give adequate protection from the gusts of rain and wind. There also had to be a really wide field of view so Babka could keep tabs on the neighborhood at a glance. While it might appear she was snoozing she absolutely wasn't…


The ribs were cut from marine fir plywood, and the cladding was salvaged redwood planks.


This custom design was inspired by referencing Soviet bus stops.


105/207 was used to clear coat the structure, and was topped with several coats of spar varnish for UV protection.

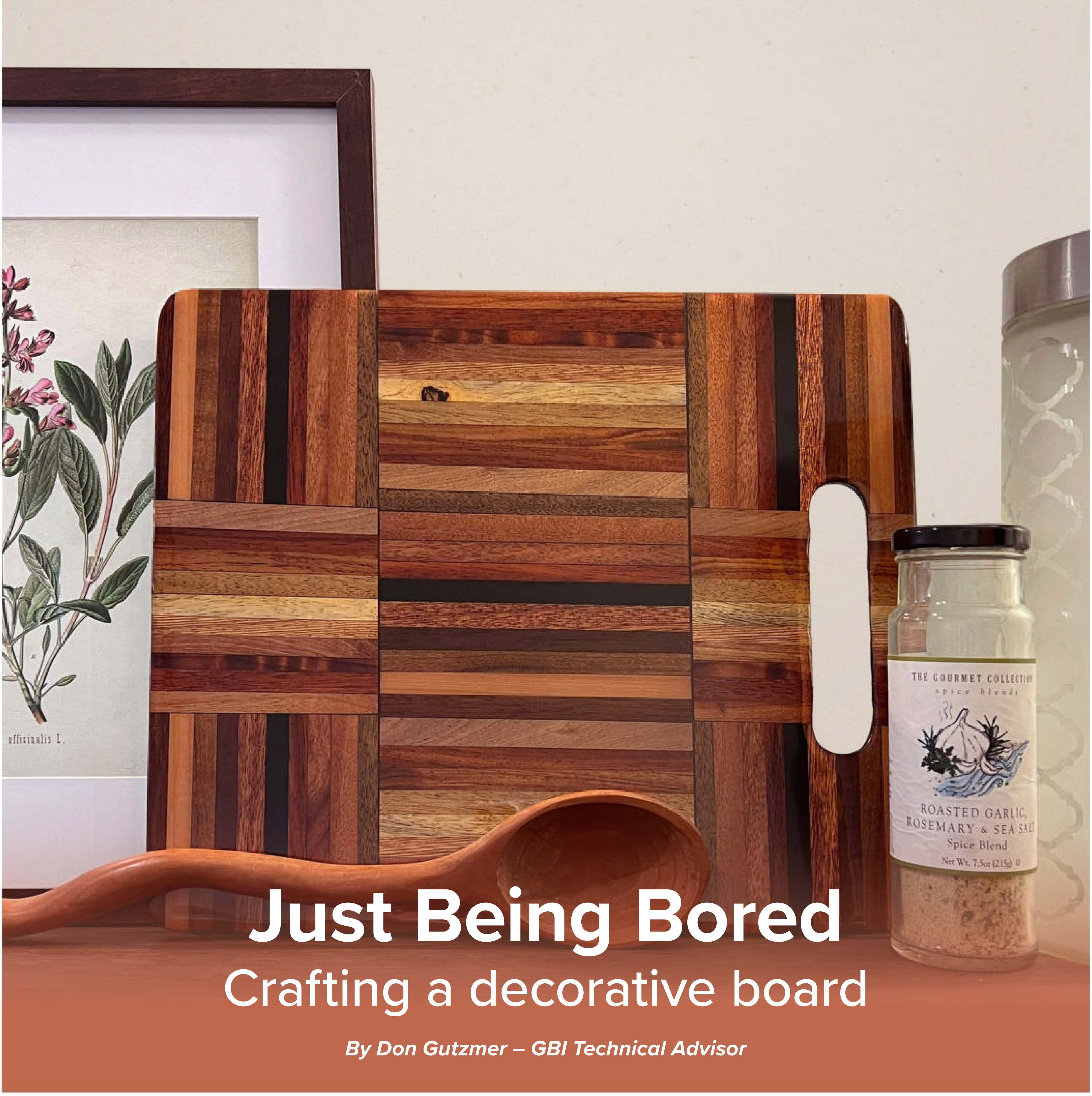

Babka on duty in her new office.

I used my CNC to cut the ribs out of marine fir. Alexander Bender from Tri-Lox, a millworks and wood salvage company, had gifted us a pile of redwood scraps from a New York City water tower. This became the cladding. I basically strip-planked the redwood—running a bevel on the strips for the curves.

When the first warm spring weather arrived, I flow coated the entire structure with several coats of WEST SYSTEM® using the 207 Special Clear Hardener®. The redwood was quite old, delicate and porous in places, but the WEST SYSTEM Epoxy did a fantastic job of soaking in and adding structure without drawing attention to itself. I was worried that if I used too much, the surface would start to look like a bar countertop. That wasn't an issue. The hue of the redwood was foregrounded.

I finished off with another several coats of spar varnish for UV protection. (After two years, and comparing photos, I haven't noticed any distinct yellowing. I will reapply a few coats of Epifanes® this summer to stay ahead of that.)

No sooner had I put a blanket down, and Babka was inside. She's there snoozing (working) from dawn to dusk, all year round. At the height of the summer she may retreat into her kiddie pool, but if it threatens to rain, we know where to find her.



Just Being Bored

Crafting a decorative board

By Don Gutzmer – GBI Technical Advisor

What do you do with 154 sample size specimens of wood? I decided to craft a decorative charcuterie board for my kitchen. While doing a large shop cleanup here at GBI, we rediscovered a set of 154 samples of wood species from all around the globe. They had previously been used for an *Epoxyworks* article on adhesion testing. Having served their purpose, they were now sitting around the shop collecting dust. Since the samples were still in good shape, I wanted to turn them into some sort of decorative project. A light bulb went off in my head. I should make a decorative piece for my kitchen inspired by a charcuterie board. (***Note:*** *WEST SYSTEM® Epoxies are not certified as food safe.*)

Selecting my Woods

The first thing that I did was select 20 wood pieces that caught my eye with their color variations. When the samples were tested for tensile adhesion, a portion of wood was removed with it, leaving a small divot. I sanded each of the wood samples until the divot was gone.

Next, it was time to determine the pattern. I knew I wanted my pattern to stand out, so I decided to alternate lighter and darker colors for higher contrast. Once I was happy with the order of my pieces, it was time to bond them together.

Breaking out the Epoxy

I chose to use 105 Epoxy Resin® with 207 Special Clear Hardener® to bond the wood samples together. This would give me ample time to assemble all my pieces at once. Fortunately, 105/207 is exactly the epoxy that was in the shop's 306-Metering Pump. I love the convenience of being able to dispense the proper ratio of both the resin and hardener in a single pump stroke.

I laid the first wood sample flat on the workbench and coated the top of it with a layer of mixed epoxy. Then I set my next piece in the wet epoxy and applied a layer of epoxy to the top of that piece as well. I worked my way through the pile of samples, stacking one on top of the next like making a sandwich. Once I had two stacks of ten samples each, I lightly clamped the wood pieces to the workbench and allowed them to cure.

Creating the Patterns

Now that I had my solid wood blocks, it was time to resaw them down into smaller slices. I cut the blocks into ¼" thick strips on the band saw, perpendicular to the epoxy line. I took these banded strips back to the sander to smooth each side.

Here's where I could really begin to see the final pattern for the board. I played around with the banded strips until I discovered a pattern that I found appealing (and one that hopefully my wife would like too!) I did a little additional sanding so the pieces fit together neatly, then edge bonded them with G/5® Five-Minute Adhesive. My approach was to epoxy each row of three pieces together first, so I only had two glue joints to worry about at one time. Then I bonded each of these rows together to make the finished size of the board. Once the epoxy had cured, I rounded the corners and cut out a handle with a sabre saw.

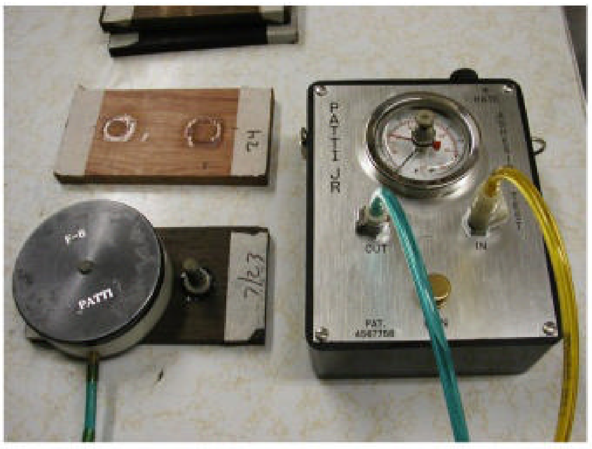
Sealing with Epoxy

I wanted the finish to be high-gloss, similar to a bar top, so I flood coated the board with epoxy. Drips are inevitable in this process, and make sanding more difficult, so I took the preventative approach. I taped the edges to prevent any drips of epoxy from getting on the backside.

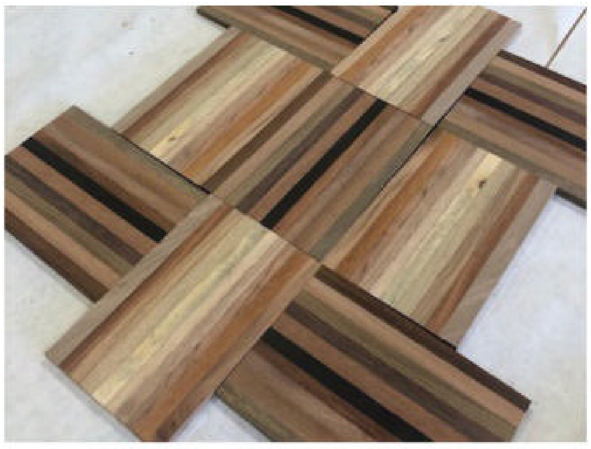
Using the 306 pump, I dispensed, then mixed a batch of 105/207. I used a squeegee to spread a thin seal coat of epoxy on the wood before the flood coat. The seal coat was to prevent air bubbles outgassing from the wood into the flood coat. As the epoxy exotherms, or as ambient conditions warm up the wood, air bubbles can be released from the wood into the thick epoxy coat.

I waited about four hours before I poured the next batch of epoxy in a flood coat. I poured the epoxy in the middle of the board and gently spread it out to the edges with a bristle brush until it was running off all sides. Since the epoxy was about ⅛" thick, I waved a propane torch over the surface to break the surface tension and release any air bubbles. I removed the drip tape along the edge once the epoxy had stopped dripping. Both sides of the board were done the same way so it had the same finish on both sides.

I'm delighted with my decorative board. If you look closely between some of the wood strips, you can see completely through the board. Some may not like that, but I think it gives the board unique character (and it's a good reminder to have a bit more clamping pressure next time). I love that I was able to find a way to give these discarded blocks a new, artful purpose.



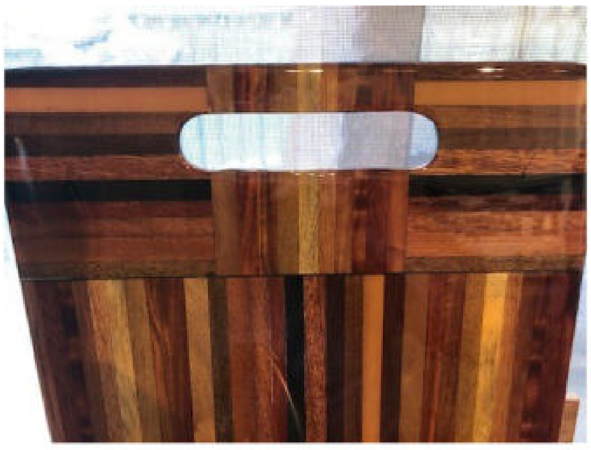
Pneumatic Adhesion Tensile Testing Instrument used to test the adhesion to wood samples.



The wood samples are cut and dry fit to create a unique pattern.

Small gaps between the wood samples filled with clear epoxy.

A flood coat of 105/207 was poured over the board for a high gloss finish.



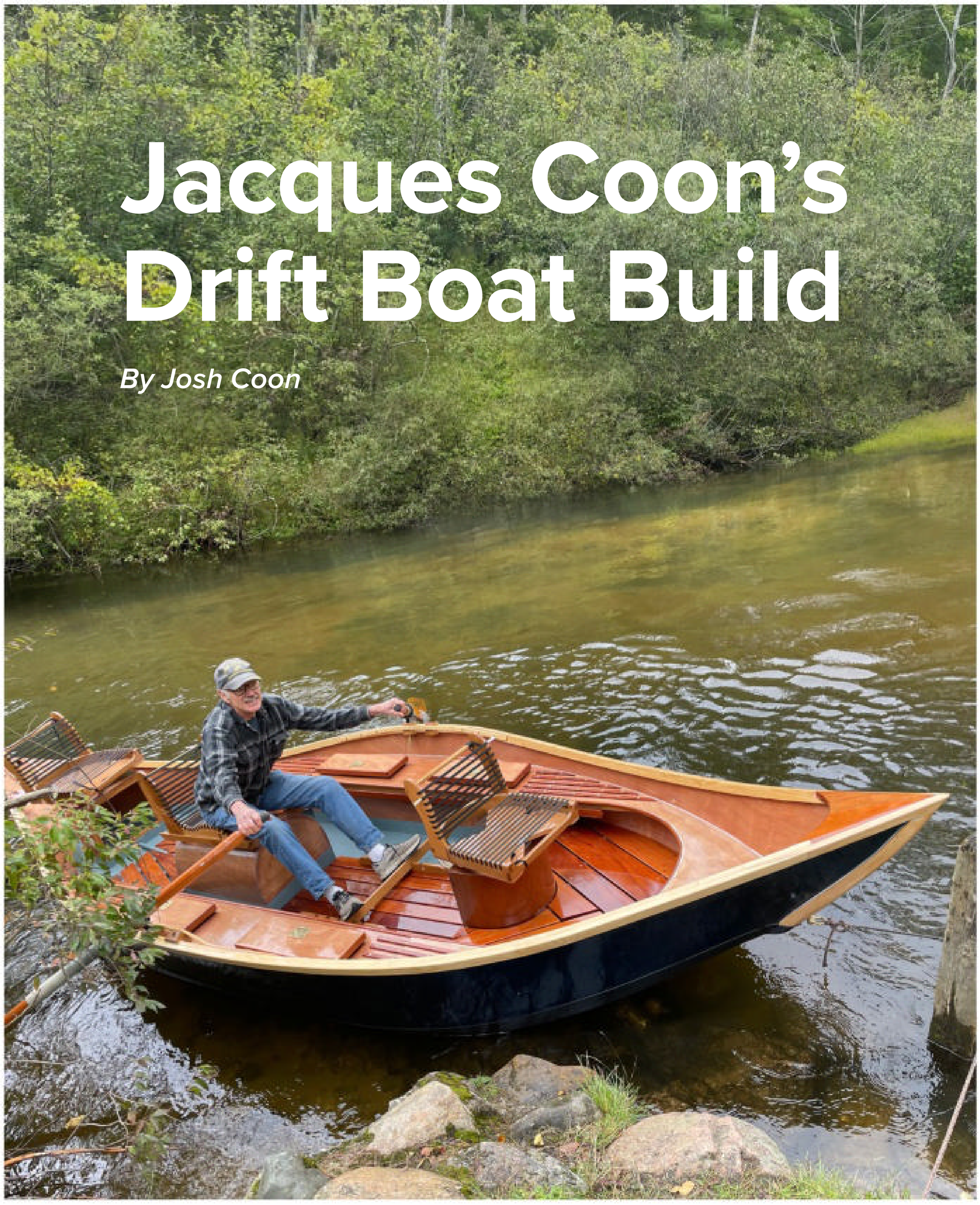
Finished board on the window sill.

Want To Learn About Epoxy Adhesion?

Take a look at our **Adhesion to Wood article**.

Jacques Coon's Drift Boat Build

By Josh Coon



The finished drift boat on water.

In the summer of 2018, I saw a Jason Cajune drift boat in the lobby of the Sage Lodge located near the Yellowstone River, in Montana's famed Paradise Valley. The boat was a modern take on the traditional Western river fishing dories that infused the clean lines and flowing curves of low-sided Montana skiffs—typically made of fiberglass at production scale. The boat would be equally at home on the water or in the showroom of a high-end furniture gallery. Two years later, while fishing on the Pere Marquette river (Michigan) with my dad, Jacques, and son Evan, I described the Cajune boat. Six months into the pandemic lockdown, Jacques was looking for a project and excitedly agreed to lead a build.

While Cajune does sell plans, I decided to design the boat, taking heavy inspiration from Cajune, but still allowing me the opportunity to customize the build. Using the computer-aided drafting software Solidworks®, I began to shape the hull – tinkering with form, overall width, and length. River drift boats are flat bottomed with rocker on either end. The flat bottom allows the boat to float in very shallow sections of river while the rocker enables quick pivoting and positioning capability. After running water draft calculations, I settled on a 17' 4" long hull, which should only draw about four inches of water with a 1,200 pound load.

With these plans complete Jacques began to source the materials with help from Gougeon Brothers technical support. The bottom was made of a continuous sheet of honeycomb polypropylene plastic (Plascore®), which offers an extremely high strength-to-weight ratio. The first step was to cut the bottom to shape and apply a Kevlar® fabric using WEST SYSTEM® Epoxy (105 Epoxy Resin® with 207 Special Clear Hardener™ and 206 Colloidal Silica). The Kevlar was then covered by a fiberglass fabric for a sandable surface. The sides of the boat were made from two sheets of ⅜" okoume marine plywood. The sheets were first scarfed together, then cut to overall shape, and finally coated with fiberglass cloth and epoxy. With the sides and bottom shaped, Jacques called on all his friends to assist with the stitch and glue assembly of the hull.

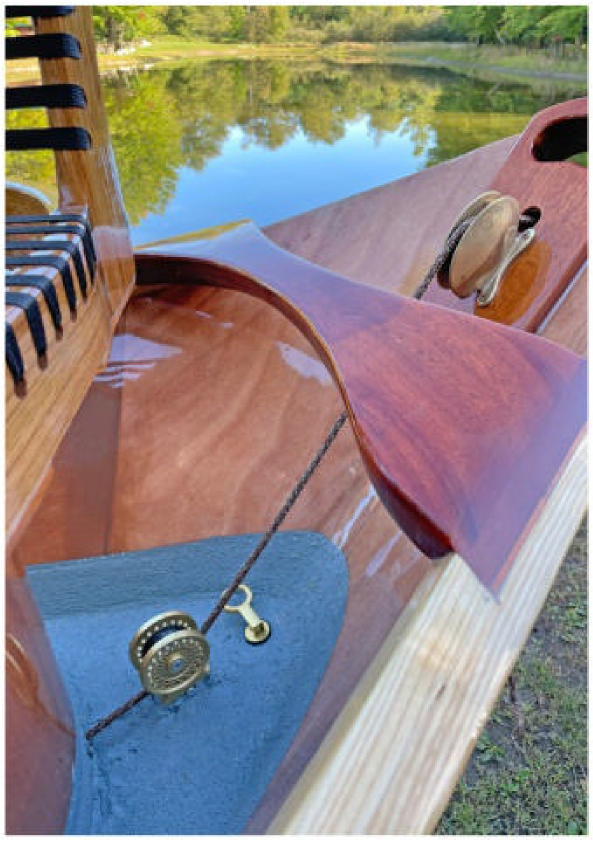
A unique characteristic of the Cajune style is the rounded transom—a key feature we sought to incorporate in our build as well. Having never done a rounded transom, this feature presented challenges. Jacques ultimately used ⅛" okoume plywood by laminating three sheets consecutively to form the desired shape. With the transom installed, the rough hull was complete and Jacques began work on the gunnels. The recurve style sides mandated that the ash gunnels be steamed for up to two hours followed by immediate clamping to the sides. An inner and outer ash gunnel were laminated in place on the sides to form the finished gunnel which measures approximately 1 ½" wide. The gunnels added considerable strength to the hull, which was now taking form. The stem, also made of ash, was next fabricated by hand to fit. The remaining trim pieces were of mahogany and comprised a transom plate, transom brace, and a small bow deck.

Having completed the hull, Jacques next shifted his focus to building the seats and seat pedestals. The three pedestals are made of ⅛" laminated okoume plywood. The oarsman seat was made to accommodate a portable barbecue grill and the others left open to serve as storage. The seats were made of white oak. Next, the interior deck and dry storage compartments were completed

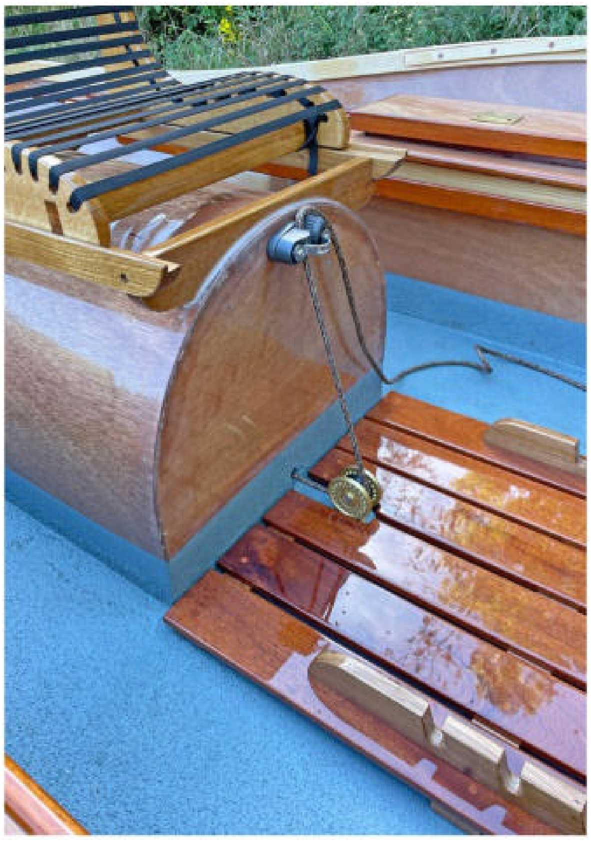
CAD rendering of the drift boat design prior to start of build.

The boat after primary hull construction. Note the rounded transom on the right, recurve sides, and Kevlar fabric on the bottom and chines.

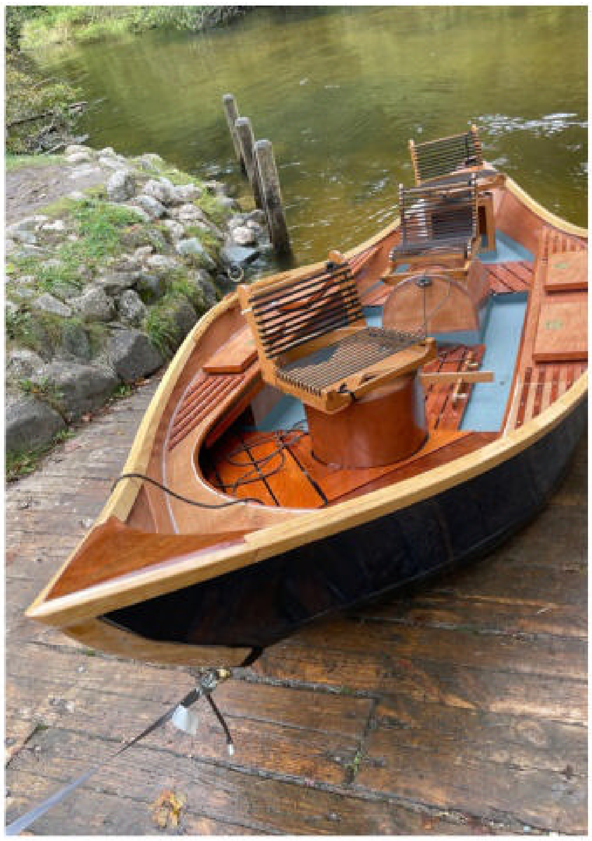
The boat after all major components had been completed. It's ready for the application of finishes.



The rounded transom, mahogany transom brace, and custom designed aluminum block.



The Oarsman pedestal, mahogany deck, and Tuff Coat floor finish.



Front seat and pedestal, herringbone mahogany sole, and interior okoume deck with mahogany decorative trim.

using ¼"okoume plywood that was strengthened with fiberglass cloth and epoxy. Strips of mahogany were then applied to fore and aft regions of the deck—both for strength and beauty. Finally, the cockpit sole was fabricated from ⅜" thick mahogany and installed in a herringbone pattern.

With approximately 20 months elapsed since the conception of the build, Jacques had completed the overall project and the only remaining steps were finishing. He started by coating all wooden surfaces with epoxy and extensively sanded every surface of the boat, inside and out. In August of 2022, he sprayed the exterior of the boat with automotive finish (Nightmist Blue) and covered it with Dupont™ Marine Imron® clear. Interior surfaces were also sprayed with the Marine Imron clearcoat. The interior cockpit sole was covered with Pettit® Tuff Coat™ in Steel Gray. This finish provides a durable, soft, and non-skid surface. To protect the bottom of the hull from rocks and scrapes that will inevitably occur when drifting down a river, a polymeric truck bed liner finish was applied to the entire bottom and chines.

The finished boat was trimmed primarily with bronze hardware: bow eye, hinges, and latches. The anchor system comprises a rope that is terminated under the oarsman seat and runs along the bottom through tubing and out the transom. The blocks on the transom were forged bronze and purchased from Jason Cajune. The blocks on the interior floor, below the oarsman and at the rounded transom, were designed by me, cut from aluminum, and anodized in a bronze finish.

The build was completed in October of 2022, almost exactly two years from the project conception. Jacques, Evan and I are excited to formally commission the boat in the spring of 2023 with its maiden voyage planned for either the AuSable or Pere Marquette, both famed Michigan trout streams. This boat, however, should be equally at home on famous Western rivers like the Madison, Yellowstone, and Henry's Fork.

How Much Epoxy Will It Take?

By Terry Monville – GBI Technical Advisor

WEST SYSTEM
207
SPECIAL CLEAR
HARDENER
Part 2
207-SB
42.2 fl.oz. (1248 ml)
WEST SYSTEM
105
EPOXY RESIN
PART 1
105-B
126.6 fl.oz. (3.7 liters)

Knowing how much epoxy you will need for a project, before you start, will save time, money, and frustration. Luckily, it is fairly simple to get a ballpark idea of how much epoxy your project will require before you start mixing.

Calculating the Amount of Mixed Resin and Hardener

The first thing we need to do is calculate the volume of your project that needs epoxy. The formula to calculate cubic inch is length x width x depth. It's pretty straightforward, but let's use it in an example. Say you want to coat a bar top with a ¼" deep coating of WEST SYSTEM® 105 Epoxy Resin® and 207 Special Clear Hardener™. The bar top is 6' long (72") and 2 ½' wide (30"). To calculate the volume of the coating, we multiply these dimensions together. It's important to be sure your units all match before beginning your calculations. In this case, we're going to stick with inches.

$$72 \text{ in} \times 30 \text{ in} \times 0.25 \text{ in} = 540 \text{ in}^3$$

$$\text{Length} \times \text{Width} \times \text{Depth} = \text{Volume}$$

Now that we've calculated the area that needs epoxy, it's time to convert that into a more useable number, ounces. Here's the conversion that will help get us there:

$$1.8 \text{ in}^3 = 1 \text{ fl.oz.}$$

or

$$231 \text{ in}^3 = 1 \text{ gal.}$$

Since we now know our total volume, 540 in^3, we can calculate how much liquid is needed to fill that volume. We simply divide the number of cubic inches for our project by the number of cubic inches in either a fluid ounce or a gallon.

$$540 \text{ in}^3 \times \frac{1 \text{ fl.oz.}}{1.8 \text{ in}^3} = 300 \text{ fl.oz.}$$

or

$$540 \text{ in}^3 \times \frac{1 \text{ gal.}}{231 \text{ in}^3} = 2.34 \text{ gal.}$$

This gives us the total amount of mixed resin and hardener we need to fill the required volumes for our fictional bar top project.

How Much Resin and Hardener Should I Buy?

Now that we know the volume of mixed epoxy required for our project, it is an excellent time to explain the WEST SYSTEM group sizes. The group sizes are based on the size of the 105 Epoxy Resin containers. The corresponding group size hardeners are adjusted according to mix ratio so you use up all the resin and hardener in the containers at the same time.

An A Group of resin has a quart of 105, a B Group has a gallon of 105, and a C Group has 4.3 gallons of 105 Epoxy Resin. Then you buy the 200 series hardener from the same group size. For example, if you want to purchase a 105-B and 207 hardener, you would need to purchase the 207-SB. The last letter in the part number indicates the group size giving you the appropriate amount of hardener for the resin.

205 Fast Hardener® and 206 Slow Hardener® are mixed with the 105 Epoxy Resin at 5 parts resin to 1 part hardener by volume. The 207 Special Clear Hardener

and 209 Extra Slow Hardener® are mixed at 3 parts resin to 1 part hardener by volume. Since the volumetric ratios are different, hardeners of the same group size will have a different amount of total mixed epoxy.

For our bar top, we need 2.34 gallons of mixed 105/207. We usually factor in around an additional 10% for waste, to account for epoxy left in the bottom of cups and soaked up by roller covers. This puts us at around 2.57 gallons of mixed epoxy needed. You can see in the chart that two B Groups of 105/207 would give you 2.6 gallons or 604 in^3 of mixed epoxy.

The coverage information in this chart can also be found on the side of the resin cans. This makes picking your group size easier when shopping. The coverage is based on one layer of epoxy rolled out using a West System 800 Roller Cover, applied using the roll and tip method. On a non-porous surface, this will give you a layer about 4 mils thick. Mils is a measurement of film thickness. One mil is equal to 0.001". If you do the math on an A group of 105/206, 121 ft^2, 0.004" deep, it works out to 70 in^{3}or 39 fl.oz. of epoxy.

Coverage will vary depending on how hard you press down on the roller, the temperature of the epoxy, and the porosity of the surface. In cooler weather, the epoxy will be thicker and not as easy to roll out to 4 mils. The thicker the coating, the fewer square feet of coverage, and the more likely it will be to run or sag on a vertical surface. The more porous the surface, the thinner the first coat will be.

How Fillers Affect Coverage

How does adding fillers affect the volume of mixed epoxy? With our 403 Microfibers, 404 High-Density, 405 Filleting Blend, and 406 Colloidal Silica, you will have slight volume increases, but not enough to worry about for estimating. This is because these fillers tend to be wet out by epoxy.

Working with 407 Low-Density Filler and 410 Microlight® is a different story. These fillers are particles that take up space in the mixture and lower the density. Let's say we're working with an A Group of 105/206—70 in^3 of epoxy. If we thicken the entire batch with 407 to a peanut butter thickness, it will give us 2.2 times the volume of the neat epoxy or 154 in^3 of thickened epoxy. This will cover 4.3 ft^2 at a thickness of ¼". This would be handy to know if you were planning on fairing your keel or other repairs.

Using 410 to thicken an A Group of 105/206, you would see the neat epoxy expand 2.5 times, yielding 175 in^3 of thickened epoxy. This would cover 4.8 ft^2 at ¼" thick.

Buying more than needed is not a big issue for epoxy, it keeps, but it might be more money than you wanted to spend. On the other hand, not purchasing enough is always inconvenient and time-consuming. By calculating out how much epoxy you need in advance, you can ensure you hit that happy medium of not running short or breaking the bank.

Package Size/Quantity			Coating Coverage	
Resin Quantity	**Hardener Quantity**	**Mixed Quantity**	**Saturation Coat** (porous surfaces)	**Buildup Coat** (non-porous surfaces)
105-A 1 qt (.94 L) 2.40 lb 57.7 in^3	**205-A or 206-A** .43 pt (.20 L) .47 lb 12.4 in^3	1.2 qt (1.15 L) 2.87 lb 70.1 in^3	90-105 ft^2 (8.5-10 m^2)	120-135 ft^2 (11-12.5 m^2)
	207-A or 209-A .66 pt (.31 L) .70 lb 19.0 in^3	1.3 qt (1.26 L) 3.1 lb 76.1 in^3	90-105 ft^2 (9-10 m^2)	120-135 ft^2 (11-13 m^2)
105-B 98 gal (3.74 L) 9.50 lb 226.4 in^3	**205-B or 206-B** .86 qt (.81 L) 1.86 lb 49.7 in^3	1.2 gal (4.55 L) 11.36 lb 302.6 in^3	350-405 ft^2 (32-37 m^2)	462-520 ft^2 (43-48 m^2)
	207-B or 209-B 1.32 qt (1.24 L) 2.75 lb 76.2 in^3	1.3 gal (4.98 L) 12.25 lb 302.6 in^3	370-430 ft^2 (35-40 m^2)	490-550 ft^2 (45-50 m^2)
105-C 4.35 gal (16.46 L) 41.82 lb 1004.9 in^3	**205-C or 206-C** .94 gal (3.58 L) 8.20 lb 217.1 in^3	5.29 gal (20 L) 50.02 lb 1222.0 in^3	1530-1785 ft^2 (142-165 m^2)	2040-2300 ft^2 (190-213 m^2)
	207-C or 209-C 1.45 gal (5.49 L) 12.0 lb 335.0 in^3	5.8 gal (21.9 L) 53.82 lb 1339.9 in^3	1675-1955 ft^2 (155-180 m^2)	2235-2520 ft^2 (207-233 m^2)

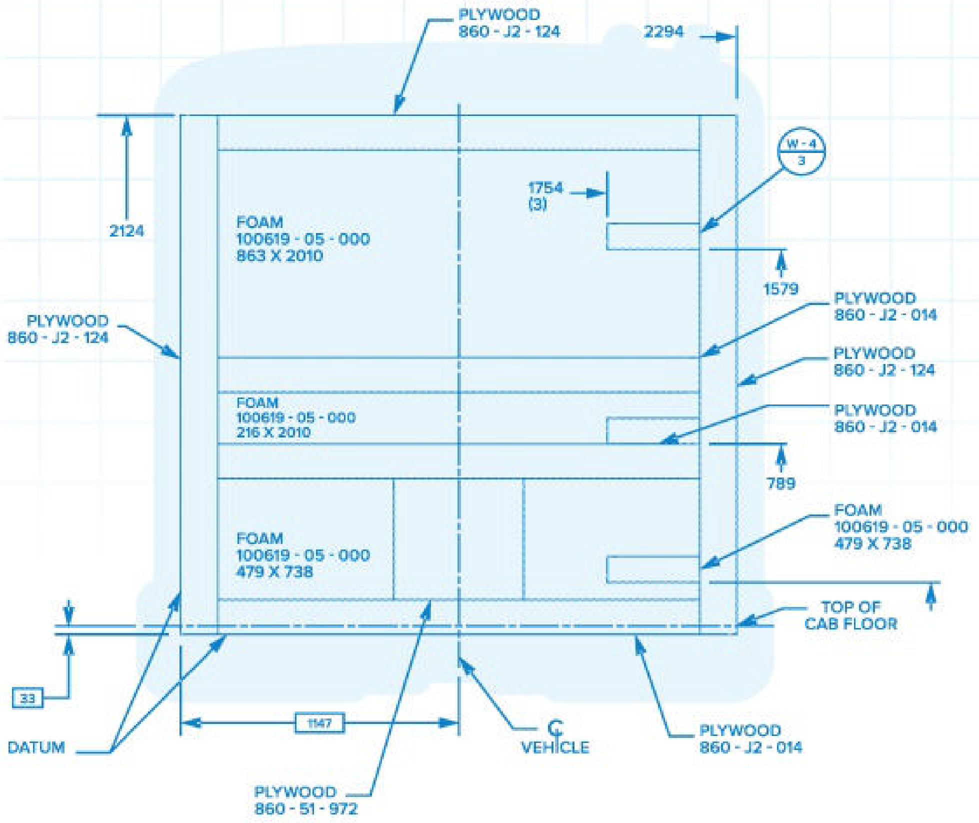
Want To Learn About West System Fillers?

Take a look at our **Filler Selection Guide**.

RV Wall Replacement

By Matthew Logering

When we purchased our 2006 Winnebago® RV, we knew we would need to complete some repairs. We never imagined the back wall would need to be removed and rebuilt from the ground up. One of the edges of the back wall was compromised which allowed water to penetrate the wall and eventually saturate a majority of the plywood within. After determining that the damage was too great to spot treat/repair, we began the process of removing the wall.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Back wall drawing provided by Winnebago.

After studying the engineering diagram from Winnebago, we learned that the wall was a sandwich construction. The wall had a fiberglass exterior, plywood and polystyrene foam core, and a wallpapered lauan plywood on the interior. If we were going to go through the work to rebuild the wall we wanted to insure it was built to last.

This is where the three A's of most projects came into play: Analysis, Acquire, and Action.

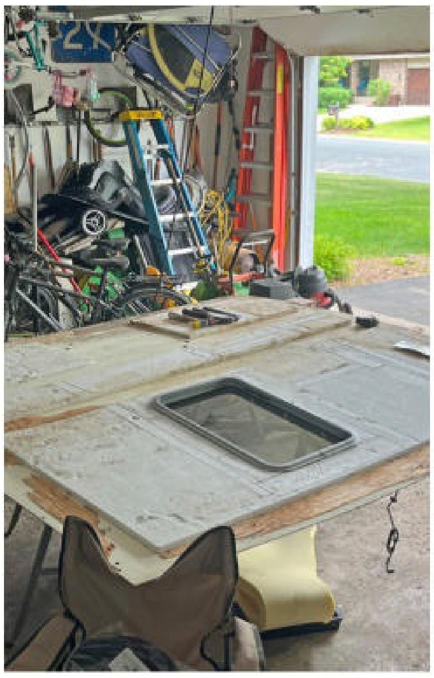
We have come to enjoy the analysis phase the most. For this project it involved researching the construction of the back wall and the extent of the damage. It also involved learning more about the products and techniques available to complete the repair. We have found that a combination of community groups and manufacturers are the best place to seek out the information necessary to do a project well. For this project, we leveraged an RV community on Facebook specific to our model of RV and also WEST SYSTEM® for their technical expertise on how to properly seal and adhere plywood to fiberglass.

With our research complete, it was time to acquire the necessary tools and supplies to complete our project. This is often the least desirable step in the project as it involves a lot of research and time. Despite the work, this is where we realized the value of the analysis step, as we had a good handle on what was needed. For this project, we acquired WEST SYSTEM 105 Epoxy Resin®, 206 Slow Hardener®, 406 Colloidal Silica Filler, ¾" plywood, remnant wallpapered lauan from a local RV repair shop, disposable paint brushes and cups.

The back of the camper with all exterior trim removed.

The rear wall has been removed from the camper.

We sourced a remnant of wallpapered lauan from a local RV repair shop.



The panel has been relocated to the workshop to begin demolition.

With a plan in place, and the equipment and supplies at hand, we put our work into action.

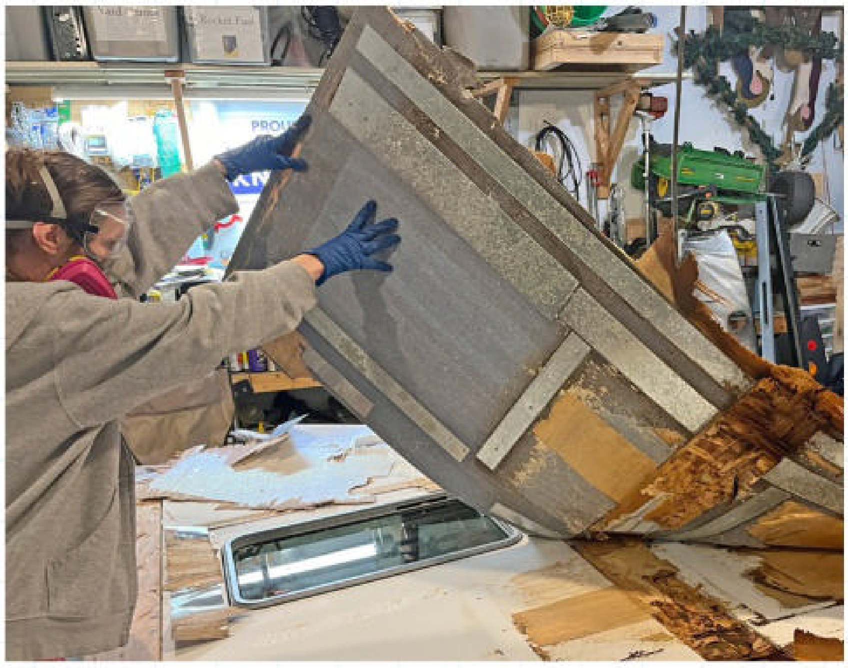
At this stage, we had to remove the back wall from the RV. This required detaching all mechanicals and walls from the inside of the coach as well as all exterior trim pieces. Once the wall was detached, it could be removed from the RV for disassembly. As we removed the interior lauan plywood, the extent of the damage became clear. All the lauan plywood, as well as the plywood framework, had to be removed.

Now we could get working on epoxying the new plywood framework. The technique involved sealing each piece of plywood to ensure, even if they came into contact with water in the future, the moisture could not penetrate into the wood. Using 105 Epoxy Resin and 206 Slow Hardener, we coated each piece of plywood with three coats. Each coat was allowed to dry to a tacky finish, but not any further. Had we allowed the coat to dry further we would have needed to wait until a full cure and then sand to ensure proper adhesion before coating again.

Once the plywood was coated, we could move onto bonding it to the fiberglass exterior panel. We started with applying a coat of 105/206 to wet out the uncoated side of the plywood. We then added 406 Colloidal Silica Filler to get a mayo consistency. This epoxy mix was perfect to strongly bond each plywood board to the fiberglass. We used cement blocks to help compress the laminate, being careful not to apply too much pressure which would cause all the epoxy to squish out.

Once all the internal plywood framework was affixed, we added the final layer of interior wallpapered lauan using a flexible sealant. The finished wall was then attached back to the RV. Any place where we drilled through the plywood during the process of attaching back to the RV, we predrilled the holes, filled with epoxy to seal the wood, and then put our screws in to affix the wall to the RV.

> *The finished product is sealed and much better than the original. We are thrilled to be back on the road and doing what we love. Sometimes life takes a turn you don't expect, but having a community and partners to help you along the way makes even the worst nightmares a fun learning experience.*



Peeling back the lauan panel seeing the true extent of the water damage.

Applying a neat coat of epoxy before bonding the plywood to the fiberglass wall panel.

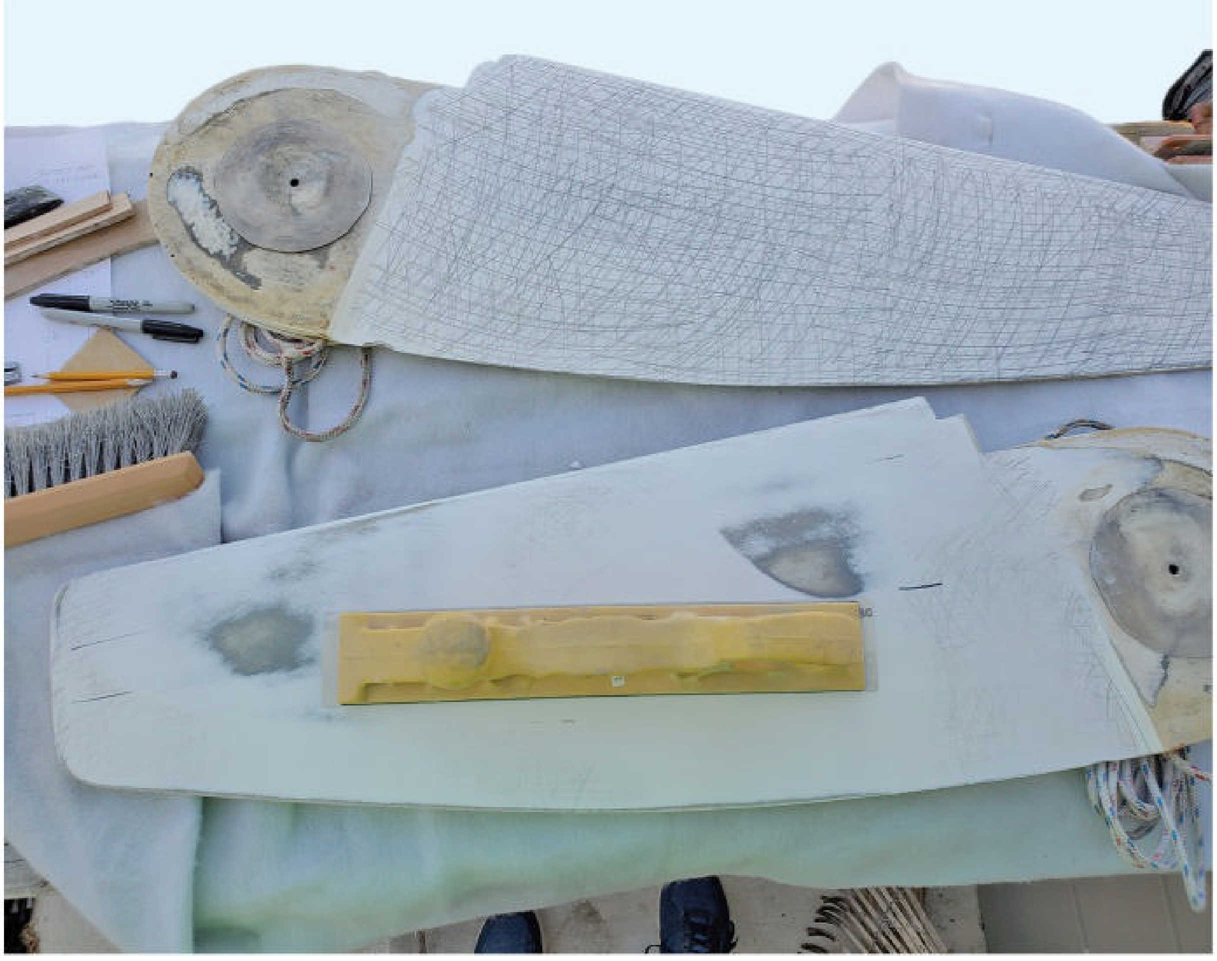
Cement blocks used compress the boards into the thickened epoxy.

Navion
SOUTHERN RV
SUPERCENTER
www.southernrvsupercenter.com

Finished wall from the inside (above) and outside (below).

Preparing to Fair

By Greg Bull – GBI Technical Advisor



Most of the rudder has been shaded with a pencil, so after longboarding, you can see the fairness of the entire surface.

Those new to the process of fairing a boat's hull or deck are quick to mix up a batch of fairing compound, West System® Epoxy with a low-density filler, and apply it to the surface, so they can start sanding right away. My experience in boat repair and construction has taught me the importance of making a fairing plan and selecting the correct materials before any epoxy is mixed.

Understanding Fair and Smooth

It is important to understand the difference between fair and smooth. Smoothness describes the texture and fairness describes the shape. If you run your hand on the surface, and you feel bumps and hollows (or highs and lows), the surface is not fair. Another way to see a fair surface is by using a wood or plastic batten, which is a thin strip of straight grain wood that is ¾" to 1 ¼" square, it will always bend in a fair curve if only held at the ends. An unfair surface can be smooth to the point of being glossy but not look good to the eye. Simply sanding a surface smooth will not provide the fair yacht-like finish many builders desire. Fairing requires attention to the shape of the entire surface and requires planning where to fill and sand.

Developing a Fairing Plan

Before you apply epoxy, you can save significant time and fairing compound by marking where the fairing compound should be applied. This requires determining the profile of the surface.

Determining the profile, or fairness, of a surface can be accomplished quickly and save a significant amount of fairing compound and sanding. A common method is to take a pencil and scribble over the entire surface. The next step is to sand with a longboard. A longboard is often a custom-made board that sandpaper is bonded to. In the case of the rudder in the pictures, a longboard only needed to be about 12" long. On the hull of a 40' boat, it may be 3' to 6' long and require a couple of people to run. On mega yachts, the boards are often over 10' and require multiple people to move. The reason for the length is to follow the fair curve of the surface, bridging over any hollows and sanding down only the high spots.

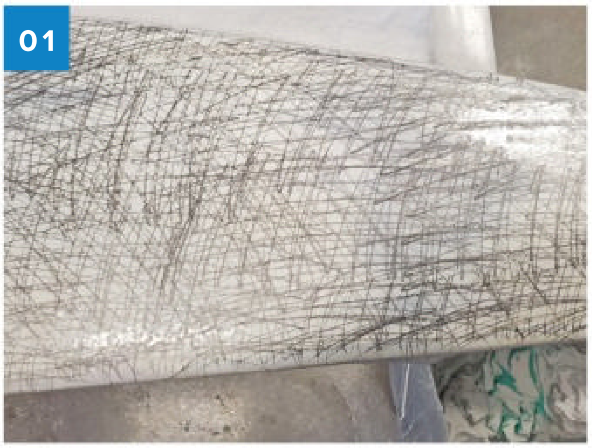
If a simple dual-action sander was used instead of a longboard, the surface would become smooth but the small 5" pad would follow the highs and lows of the surface. This would result in a smooth but unfair surface.

An alternative to the pencil method is the chalk stick method. This process utilizes a batten that is coated with carpenter's chalk. By moving this chalk stick back and forth on the surface, the high spots will become visible. This process is described in detail in the *Gougeon Brothers on Boat Construction*, page 245. Again, both of these methods are performed before any fairing compound is applied.

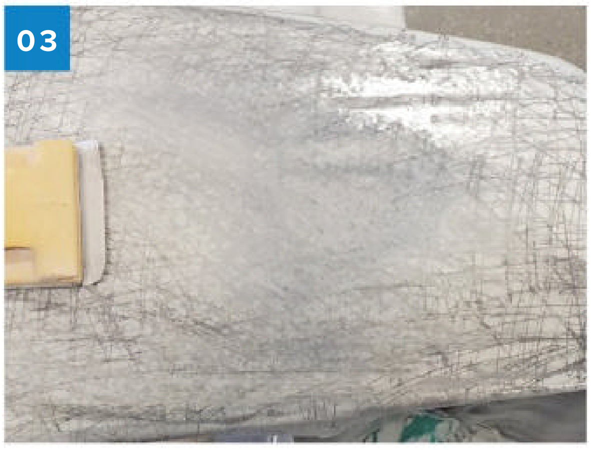
Mixing 407 and 410 Fillers

West System fairing fillers are added to West System Epoxy to create a fairing compound. Adding fillers increases the volume of an epoxy batch when blended into the mixed resin and hardener. These fillers are made of microspheres and balloons that are very low-density. This mixture has a lower density than neat epoxy resulting in an easy to sand material.

Generally speaking, when adding 407 Low-Density Fairing Filler to make a thick fairing compound, the volume will be about twice the original volume of



When marking the surface, you need to scribble in multiple directions so the low spots are obvious after sanding.



Sand pencil marks to reveal high and low areas.

the mixed resin and hardener. With 410 Microlight® Fairing Filler it will be about two and a half times the original volume. This information is very handy so you do not overflow your mixing cup or waste epoxy. To learn more about estimating, see Terry Monvilles' article "*How much Will it Take?*"

***Note:** Just a reminder, surface preparation is required for proper adhesion of the fairing compound. We always recommend sanding the entire surface with 80-grit sandpaper before applying epoxy.*

Dark Colored Topcoats

When fairing an area that will have a dark colored topcoat, you will need to consider what filler to use. WEST SYSTEM provides two options: 407 Low-Density Fairing Filler and 410 Microlight Fairing Filler. 410 is easier to sand and very easy to mix into the epoxy. Because of these traits, This filler is not very resistant to high temperatures. Dark colors can become very warm on sunny days, which can cause the surface to distort slightly. 410 can be used under light colors and below the waterline without concern.

If a dark colored, high-gloss finish is desired, consider using 407. WEST SYSTEM 407 is resistant to higher temperatures. 407 is a stronger fairing compound and therefore is slightly more difficult to sand than 410. This can be beneficial on decks or other areas that can see foot traffic, particularly when someone is not wearing boat shoes.

With all fairing applications, once the sanding is complete, the surface should be coated with neat epoxy. This thin coating of epoxy fills pinholes and provides a uniform surface for your primer.

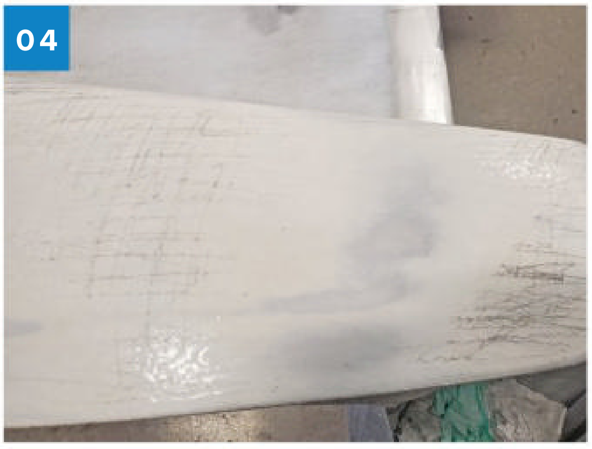
Fairing Clear Finished Wood Surfaces

On areas that will have a clear finish, using fairing compound is not an option. Adding fillers to the epoxy will obscure the surface and hide the wood grain. When fairing clear surfaces, the chalk stick method described earlier is an excellent process for identifying high spots. The chalk marks will wipe off easier, so that the epoxy does not over coat the chalk marks.

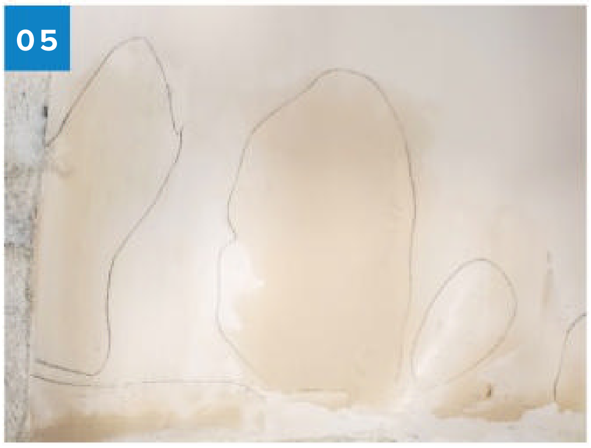
Since the only option to fair the surface is removing high spots, expert boat builders will emphasize the importance of good craftsmanship—having your mold frames in the proper placement, cutting accurately, and fairing from one station to the next. The strip planks and veneers will naturally take a fair shape if the mold is also fair. With stitch and glue construction, care should be taken to have each piece cut accurately, and the edges checked for fairness before assembly. Keep in mind, with plywood construction, only a small amount of wood can be sanded before you may sand through the top veneer. This can result in an undesirable or spotty appearance under a clear finish.

If the boat is completed, and the clear finished area is not fair, it can still be corrected. The process for fairing a clear finished surfaced was explained in a previous EPOXYWORKS article, "*Refinishing a Wood Strip Canoe.*"

Simple steps, like a fairing plan, prior to mixing your fairing compound can save time and materials. Taking the time to identify low and high spots on your surface will make your fairing job much easier. Also taking extra time fairing clear finished wood surfaces early in the construction process pays dividends by the time you get to the epoxy process.



The high areas have been sanded down into old fairing compound and fiberglass. The remaining pencil lines indicate the low areas where the new fairing compound needs to be applied.



Mark the low areas and then remove the pencil lines with sandpaper, so that the thickened epoxy will bond well to the surface.

Want To Learn About the fairing process?

Watch this video on
fairing from WEST SYSTEM.

WEST SYSTEM

Wooden Boat Centre Works Wonders with WEST SYSTEM

By Lorraine Duckworth – ATL Composites

Located on the banks of the picturesque Huon River at Franklin, Tasmania, The Wooden Boat Centre is Australia's only wooden boat building school, creating original masterpieces and restoring heritage vessels while mentoring students from all walks of life.

For the past 30 years, the Wooden Boat Centre has been dedicated to keeping the tradition of hand-made boats alive. Their one year shipwright course, and a variety of shorter courses, give students hands-on experience in both traditional and modern boat building techniques.

Locals and visitors are always welcome to visit for a guided tour to explore the age-old craft of wooden boat building.

"The appeal of the wooden boat is universal," explains Cody Horgan, head shipwright and manager of the Wooden Boat Centre. "They are functional, beautiful and represent the pinnacle of artistic expression in wood. It's an enduring art form. To build a timber boat is an amazing experience and keeping these skills alive is very satisfying."

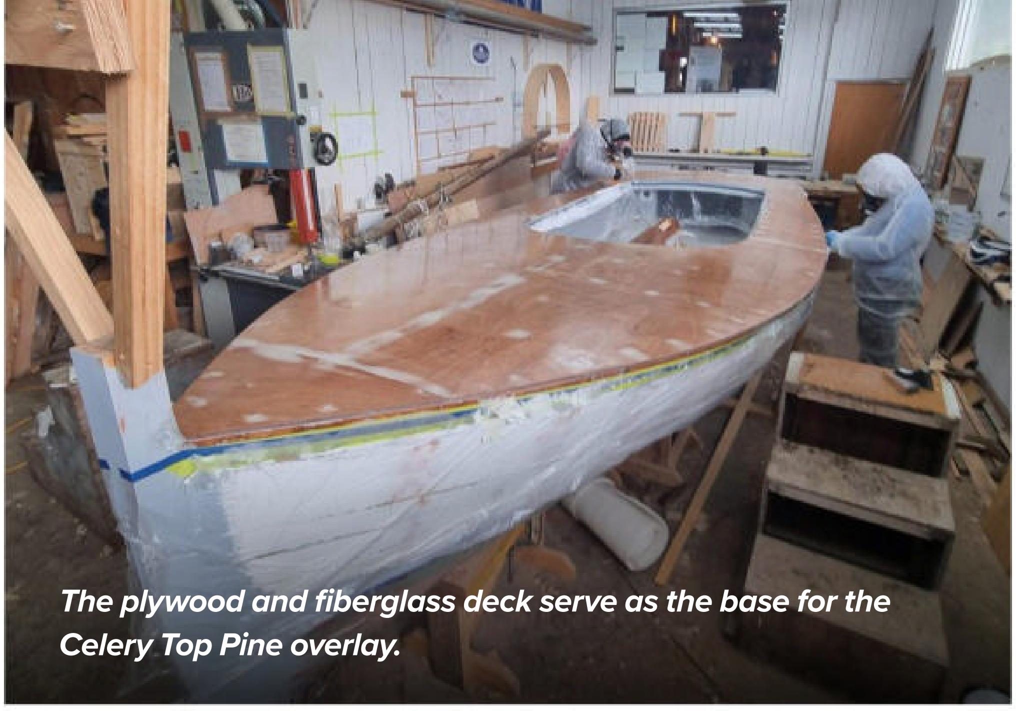
Cody was a student in 1999/2000 and gained a Diploma in Wooden Boatbuilding. He has since worked in various boat yards around Sydney and Bobbin Head on many various projects. For the past eight years, prior to joining the boat school, Cody worked at the Australian National Maritime Museum in Sydney. There he carried out maintenance of the tall ship *Endeavour* (replica), as well as maintained the fleet of small vessels that span Australia's nautical heritage.

In the lead up to the 2023 Australian Wooden Boat Festival, students at The Wooden Boat Centre were working on several unique projects, including the restoration of a historic Tamar Cod Boat from Launceston, with the aim of modernizing and refreshing her for her next incarnation as a family day boat.

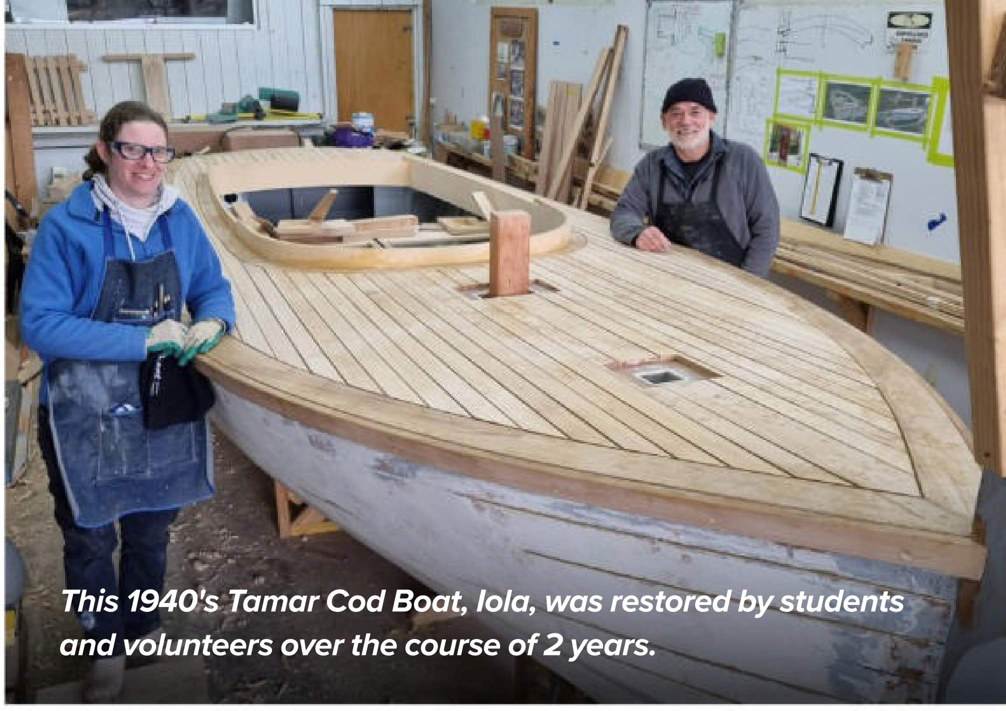
As Cody explains, "It's a fishing boat conversion to a Couta-style day boat for her owners to enjoy for day trips.

"It's made of Huon Pine with a plywood deck with fibreglass on top. The next step is a false-laid deck of Celery Top Pine that looks like a real deck, held down by modern composites."

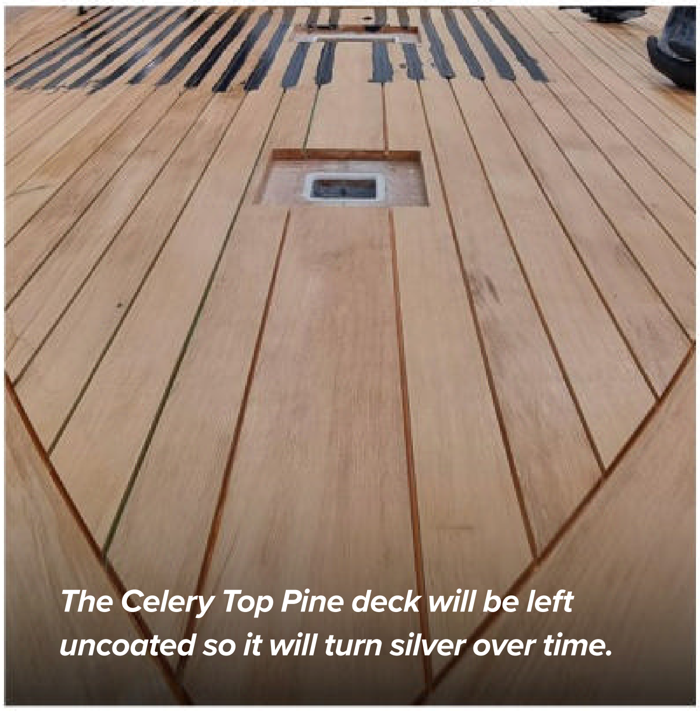
The Wooden Boat Centre has relied on WEST SYSTEM® for many years.



The plywood and fiberglass deck serve as the base for the Celery Top Pine overlay.



This 1940's Tamar Cod Boat, Iola, was restored by students and volunteers over the course of 2 years.



The Celery Top Pine deck will be left uncoated so it will turn silver over time.

Cody Horgan, head shipwright and manager.

> *The Wooden Boat Centre has relied on WEST SYSTEM for many years.*

"On this particular project we used WEST SYSTEM 105 Epoxy Resin® and 206 Slow Hardener®, plus 403 Microfiber Filler," says Cody. "The deck will be left uncoated so it will turn silver over time."

"We use WEST SYSTEM for its consistent quality," he continues. "It delivers the same results every time, which is important, particularly when you're instructing students. I'm a stickler for quality and I want products that perform in different conditions and temperatures. ATL Composites also offers technical support and advice which we have found vital."

The Cod to Couta Boat, called *Iola* is on track to be finished by the end of 2022, Cody reports. She will head to her owners on the South Coast of NSW.

The team at The Wooden Boat Centre is aiming to display a Derwent Class racing boat, a Haven 12 ½ sailing boat and skin-on-frame ultra-light kayaks made at the Centre at the 2023 Australian Wooden Boat Festival, February 10th-13th in Hobart.

For More Information

To learn more about the **Wooden Boat Centre** visit, woodenboatcentre.com

To learn more about the **AU Wooden Boat Festival** visit, australianwoodenboatfestival.com.au

Basic Epoxy Safety Practices for DIY Boat Repairs

By Grace Ombry – GBI Retiree

Epoxy safety begins with working cleanly. When handling WEST SYSTEM® Epoxy resin and hardener, take steps to keep epoxy out of your eyes and off your skin and clothing. Ventilate your workspace to protect your respiratory system. Minimize the amount of epoxy that gets on your work surface and tools. Regardless of the type of boat repair you have planned, follow these safety practices:

Protect Your Eyes and Skin

Whenever working with epoxy, wear safety glasses or goggles to prevent epoxy from splashing into your eyes.

Neoprene gloves are a great choice for keeping epoxy off your hands. These gloves offer chemical and puncture resistance, good finger sensitivity, and flexibility for manual dexterity.

While it might seem like you're getting away with not wearing gloves if you haven't developed a rash, skipping gloves may eventually result in a histamine reaction. Repeated exposure to epoxy resin, hardener and uncured mixed epoxy can sensitize your skin over time, resulting in a rash similar to poison ivy. Once this happens, the rash can return after each fresh epoxy exposure.

Protecting your clothes will prevent uncured epoxy from soaking through them and reaching your skin. For especially messy jobs, consider using a lightweight coverall made from a chemical-resistant fabric like Tyvek®. There are other options too, from disposable aprons to single-use sleeves. Choose the best combination for your working style and the task at hand.

It's also a good idea to keep epoxy off your tools and work surfaces. Heavy (4 to 6 mil) plastic sheeting is great for protecting your work area from epoxy drips and spills. Mask your tools with cellophane packing tape; epoxy won't stick to the tape, making cleanup a snap.

Respiratory Safety

WEST SYSTEM Epoxies have very low volatile organic compounds (VOCs). However, when epoxy is heated or used in a poorly ventilated workspace, the chance of overexposure to vapors increases. Even with low VOCs, it's possible for epoxy vapors to build up in confined spaces.

This is why you should provide ample ventilation when working with epoxy in small or tight spaces such as inside a boat hull. Ventilating can be as simple as adding a box fan or as complex as installing a high-tech air-filtration and exhaust system. If you can't adequately ventilate your workspace, wear an air-purifying respirator with an organic vapor or multi-contaminate cartridge.

Pots of curing epoxy can grow hot enough to ignite surrounding combustible materials and give off hazardous fumes. When you notice overheating epoxy, move the pot to a ventilated area far away from people and combustible materials. Dispose of the solid epoxy mass only after it has completely cured and cooled.

Partially cured WEST SYSTEM Epoxy may be firm enough to withstand sanding but you should put it off until the epoxy has cured overnight and longer if curing in a cooler environment. The dust of partially cured epoxy contains unreacted hazardous components. If you breathe sanding dust from partially cured epoxy, the remaining reactive chemicals can become trapped in the mucous lining of your respiratory system. Once there, they can cause severe respiratory irritation and/or respiratory allergies. When sanding epoxy, always provide good ventilation and wear a dust/mist mask or respirator with an N95 rating or better.

For product-specific health and safety information on WEST SYSTEM Epoxy, visit westsystem.com.

West System
User Manual
& Product Guide
105 Epoxy Resin
206 Hardener
406 Colloidal Silica
410
Six10 Adhesive
The Gougeon Brothers on Boat Construction
Wood and West System Materials
Fiberglass Boat Repair & Maintenance
Wooden Boat Restoration & Repair

For information about West System® products or technical information for a building or repair project, Gougeon Brothers offers a range of detailed publications that can help you get started. These publications are available at your local West System dealer or by contacting Gougeon Brothers. They are also available as **free downloadable PDFs at westsystem.com.**

How-to Publications

002 **The Gougeon Brothers on Boat Construction**
A must for anyone building a wooden boat or working with wood and West System Epoxy. Fully illustrated composite construction techniques, materials, lofting, safety, and tools. 5th Edition, revised in 2005.

002-970 **Wooden Boat Restoration & Repair**
Illustrated guide to restore the structure, improve the appearance, reduce the maintenance and prolong the life of wooden boats with West System Epoxy. Includes dry rot repair, structural framework repair, hull and deck planking repair, and hardware installation with epoxy.

002-550 **Fiberglass Boat Repair & Maintenance**
Illustrated guide to repair fiberglass boats with West System Epoxy. Procedures for structural reinforcement, deck and hull repair, hardware installation, keel repair, and teak deck installation. Also, procedures for gelcoat blister diagnosis, prevention and repair, and final fairing and finishing.

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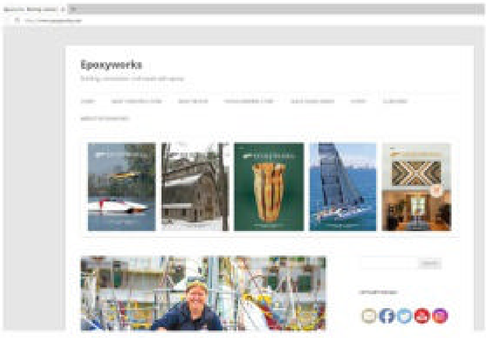
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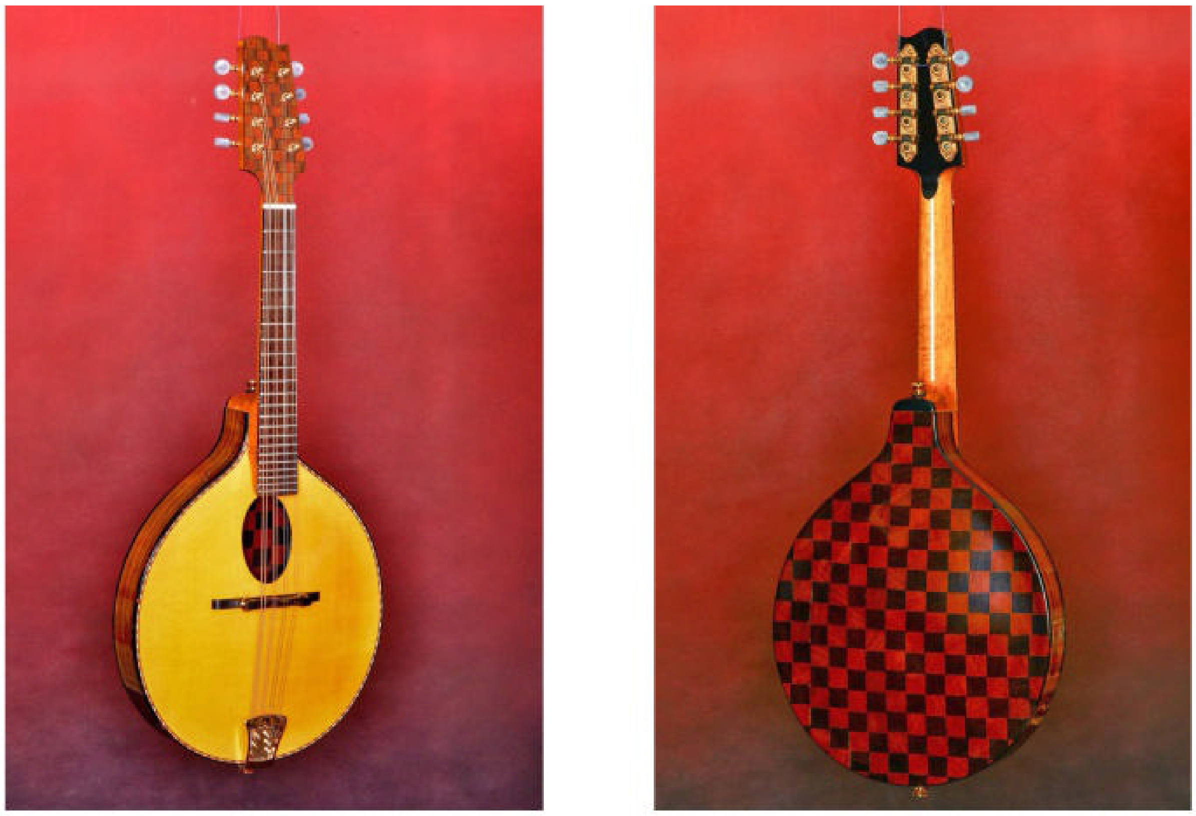
e: enquires@adhesivetechnologies.co.nz

Maurice Godin built this standup paddleboard and paddle a few years ago. The paddle and the exterior of the board are made of local eastern white cedar. The interior frame is marine plywood. The finish is fiberglass and WEST SYSTEM® Epoxy.

"Thanks to the pre-cut interior frame, and excellent tutorials at WEST SYSTEM and Sliver Paddle Boards, it turned out great. This was my first time working with fiberglass and epoxy. I was pleased with how easy it was to work with and the excellent results obtained."

Micheal Stendzis built this Camilla C, a 14' Seneca Pacific Power Dory from plans. The boat is a plywood on frame design, wrapped in fiberglass/epoxy and paint. Michael Stendzis confessed to using "copious amounts of WEST SYSTEM® Epoxy." As his largest woodworking project to date, he said "the process was incredibly fun, with lots of challenges to figure out as I went". The boat was named Camilla C as a tribute to his beloved grandmother.

Craig Bjarnason built an 8' dinghy. It is a cold molded, cedar hull with mahogany keelson seats and transom. All the laminating was done with thickened WEST SYSTEM® Epoxy. The hull was sheathed with 6 oz. fiberglass/epoxy on the outside and was epoxy coated on the inside. This boat is used as a tender for our 34' cold molded cutter on Lake of the Woods (Kenora, Ontario). It was also built using WEST SYSTEM Epoxy.



James Island is primarily known as a luthier (musical instrument maker). He uses WEST SYSTEM® Epoxy on every instrument, in one way or another - sometimes G-Flex, but mostly 105/207. His comments about the epoxy were "I can't say enough about it. My favorite glue ever!"

This mandolin was carved by CNC for the end-grain checkerboard back. He used 105 Epoxy Resin® and 207 Special Clear Hardener® on it to epoxy it together and fill all the gaps.

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Submit your projects to info@epoxyworks.com